

Croplife

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The
Week in

WASHINGTON

U.S. Population Slow to Realize Great Changes Now Going On in Agriculture

By JOHN CIPPERLY

Croplife Washington Correspondent

WASHINGTON — Notwithstanding modern methods of communication and distribution of information—printed, pictorial and oral—the U.S. exhibits an exasperating lack of understanding of the social and economic changes that have been slowly but steadily taking place in the farm communities of the nation. These changes up to this point have been largely evolutionary but are now reaching a crisis stage which may be more appropriately termed a revolution.

The farm plant of the U.S. is about to go into the crisis stage of economic and social change very closely paralleled to that of the Industrial Revolution, which struck with such great impact on western European civilization and worked extreme hardship on the village dwellers who were engaged in domestic industry.

The U.S. approach seems lacking in a full understanding of what is most upon us and now unfortunately may be dominated by political concepts rather than rational economic applications. Not that the political aspects should be ignored or disregarded, for it is the political approach which would tend to modify or prevent extreme economic and social changes, in this instance, on the farmers who seem on their way to be displaced more and more by larger farm units operated on a highly skilled management and technical basis.

For our immediate purpose let's roughly compare the current conditions with broad outlines of the Industrial Revolution. That latter phenomenon resulted from the harnessing of steam power which led to the broad urbanization of western European civilization, the growth of the factory and the destruction of markets for the domestic industry—spinners, weavers and such.

Here is its modern counterpart. First, the advent of the gasoline engine coupled with the farm combine, the cotton picker and the corn picker to mention but a few of modern ma-

chinery developments, brought about the liquidation of the farm work animals, the horse and the mule.

Next came hybrid seed corn which vastly expanded the production of this important feed grain.

Closely in line with these important economic developments in farm operation came the expanded use of chemical plant foods and chemical pesticidal materials to cause many more units to spring from the soil than theretofore had ever been anticipated. One of the outstanding farm economic thinkers, Theodore Shultz of the University of Chicago, is said to have remarked that the development of anhydrous ammonia will be to the corn crop a greater influence than the development of hybrid seed corn, and its influence will be brought to full flower within less than a decade, whereas the expansion of use of hybrid seed corn was brought to full blossom only after nearly 15 years.

These developments are what the economist would probably call economic "goods." They have bestowed on the farmer a boon whereby he has been, up to now, able to keep pace with food and feed requirements and at the same time keep his production costs in line with his rising costs of operation—costs which are notoriously high even now on the smaller farm units.

Up to the conclusion of the Korean episode and since the outbreak of

(Continued on page 20)

Charles W. Priddy Firm Starts Work On Granular Plant

NORFOLK, VA. — Charles W. Priddy & Co. here has announced start of construction of a granular unit at its Money Point fertilizer plant.

S. Y. Priddy, president of the firm, said that increasing interest in the granular product prompted the move, but that the firm will continue to make conventional-type fertilizer.

The new all-steel plant, 80 ft. long, 41 ft. wide and 65 ft. (four levels) high, will have a capacity of 20 tons an hour. The E. T. Gresham Co. is general contractor and the Industrial Engineering Co. handled the engineering phases.

Work Proceeding On New Korean Fertilizer Plant

SEOUL—Work is proceeding on the construction of the American-financed urea plant at Chungju in South Korea. Planned production is 85,000 tons of urea—equivalent to about 170,000 tons of ammonium sulfate a year. Completion is expected early in 1957.

U.S. aid funds to the extent of \$19 million are being used for the project and trade observers comment that the plant will cutback the need for imported fertilizers, although the government hopes to extend fertilizer practices among the farmers. Farming is carried out on an intensive basis and the loss of plant nutrients in the soil is heavy.

In the year ended July 31, 1954, 500,000 tons of fertilizers were provided for South Korean farmers but only 2% of this total was paid for by Korean government funds. The balance was financed by foreign aid money.

Production, Sales Of Potash Show Increase in 1954

WASHINGTON, D.C.—A report of the potash industry for 1954, just issued by the Bureau of Mines, U.S. Department of the Interior, states that production of marketable potassium salts that year increased 2% above the previous year's production.

Sales and apparent consumption increased 10% to 8%, respectively, over 1953, the report states. (The American Potash Institute, in an earlier tabulation, Croplife, Aug. 8, 1955, reported potash deliveries by the seven leading American potash producers for the fiscal year of June, 1954, to May, 1955. The K₂O figure for that period was 2,164,997 tons.)

The Bureau of Mines report says that stocks in producers' hands at the end of 1954 were 524,328 short tons with a K₂O content of 309,732 tons. This was 11% above the previous year.

Exports of potassium increased during 1954, but imports were less during that time, the report states. Imports totaled 225,230 short tons, amounting to 119,220 tons K₂O, representing a decrease of 10% from 1953. Imports of potash were supplied by the following countries: West Germany, 41%; East Germany, 22%;

(Continued on page 21)

September Anhydrous Production Declines From August Output

WASHINGTON—Production of anhydrous ammonia during September totaled 231,776 short tons, compared with 237,202 short tons in August and 210,938 in September, 1954, according to the U.S. Department of Commerce. Stocks at producing plants at the end of September totaled 103,819 tons, compared with 98,185 tons at the end of August.

September output of fertilizer grade ammonium nitrate totaled 112,935 tons, compared with 121,978 in August and 129,915 in September a year ago. Stocks at producing plants Sept. 30 were 152,264, a gain from 140,582 a month earlier.

Production of ammonium sulfate (excluding coke oven output) during September was 77,133 tons, compared with 82,453 tons in August and 92,201 in September, 1954. Stocks at producing plants totaled 84,009 short tons at the end of September, compared with 69,679 at the end of August.

BPA AUDITS CROPLIFE CIRCULATION

The Miller Publishing Co. is pleased to announce that Croplife, the weekly newspaper serving the agricultural chemical industry, has been accepted for membership in Business Publications Audit of Circulation, Inc. and that BPA audit reports on Croplife circulation are now available.

Pesticide Dealers Hear Reports on Insecticides And Fungicides for 1955

NEW BRUNSWICK, N.J.—Insect and plant disease research at Rutgers University was reviewed and recommendations for control in 1956 were given at the annual conference for pesticide dealers, Nov. 16, at the New Jersey State University here.

The question of resistance of some insects to certain insecticides came up, not as part of a formal paper, but in an observation by Dr. Leland G. Merrill, Jr., extension entomologist. He said he and others had noted that even experienced growers sometimes get careless in the operation of their spray rigs, failing to get good coverage.

In one instance, he said, a team of inspectors went to an orchard to find out why the grower was getting a poor kill. The grower had

the idea that his miticide was losing its punch. One member of the inspection team, observing the spraying operation from a distance, noted that tops of trees a third of the way down were bronzed from mite injury, and that the spray rig was effective only on the lower two thirds of the trees.

Thus, it was pointed out, the problem often may involve a lack of coverage, rather than ineffective material, said Dr. Merrill, who arranged the conference in cooperation with Dr. Spencer H. Davis, Jr., extension plant pathologist.

Research on a limited scale gives encouragement for further study of antibiotics such as Streptomycin and Terramycin for control of fire blight

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Spray Program Helps Produce Big Pecan for South Texas Grower

COLLEGE STATION, TEXAS — There's a pecan grower in South Texas who believes in spray programs.

He's W. D. Gunnels, whose 200-acre pecan orchard will more than pay for itself this year, with a 250,000 to 300,000 lb. crop, from 1,980 trees.

Mr. Gunnels bought the orchard two years ago from Mrs. H. C. Hay-slip, the widow of the man who planted it. Since Mr. Gunnels knew nothing about pecans—he's a painter and wallpaper contractor—he says, "I'm a business-man and I am accustomed to going to the right sources for proper information." He went to Texas A&M College.

Two men there provided the help he needed. They were Dr. David W. Rosberg of the plant pathology and

physiology department, and Dr. Don King of the entomology department. The two specialists visited the orchard, then told Mr. Gunnels what to do.

He followed recommendations for pruning, spraying and doctoring the trees. Spraying was the big factor in his almost phenomenal yield this year. Recent history of the orchard showed that scab and case-bearers raided the trees so badly that yields were negligible.

One application of parathion early in May took care of the pecan nut case-bearer. Four applications of zineb—Dithane Z-78—for pecan scab control were used. First was a pre-pollination spray. The second was made with the parathion application, and the other two were made to keep the leaves and nuts covered after summer rains.

Pennsalt Enters Propellant Field

PHILADELPHIA — Pennsylvania Salt Manufacturing Co. has announced plans to enter the aerosol propellant and refrigerant fields late in 1956 with the Isotron line, a complete family of chlorofluorohydrocarbons. Initial products will include trichloromonofluoromethane, dichlorodifluoromethane, and monochlorodifluoromethane. Early additions to the line will be trichlorofluoroethane and dichlorotetrafluoroethane. The new Isotron line will be produced in a multi-million dollar plant already under construction at Calvert City, Ky.

Over 1,000 Expected at Agricultural Ammonia Institute Kansas City Meeting

MEMPHIS—Herbert Pike of Whiting, Iowa, one of the 12-man agricultural delegation which visited the Soviet Union this summer, will give a first hand account of his Russian tour at the fifth annual convention of the Agricultural Ammonia Institute in Kansas City, Dec. 5-7. Mr. Pike's address will be, "10,000 Miles Through Russia."

Mr. Pike operates a large farm in the Missouri River Valley between Sioux City and Omaha. He is an Iowa master-swine producer, a graduate of Iowa State College with a master's degree in economics and a trustee of the Iowa State College Agricultural Foundation.

The 43-year-old farmer is expected to have an audience of 1,000 or more at the AAI's session at the Kansas City Municipal Auditorium at 11:15 a.m. Dec. 6. His account of the Russian trip has been published in U.S. News and Town Journal.

Delegates to the AAI Convention are expected from throughout the nation. More than 1,100 interested in the use and distribution of agricultural ammonia attended the institute's convention last year in New Orleans.

Mark C. Craft, head of Midwest Fertilizer Co. of Springfield, Ill., is president of the AAI. Others who will give principal addresses at the convention are:

H. B. "Doc" Sharer, New York,

U.S. Rubber Co., "What Makes Star Salesman A Star;" Jack Minnoch, Chicago, executive director of the National Hide & Wool Assn., and James H. Andrew, Andrew Farm Store, Jefferson, Iowa, "Distributed Problems."

Five of the nation's leading agronomists will take part in a panel that will conclude the convention. The subject is "Agronomic and Soil Characteristics of NH₃," Dr. Louis B. Nelson, head of the Eastern Soil and Water Management Section, Agricultural Research Service, U.S. Department of Agriculture, Beltsville, Md. will serve as panel leader.

Panel participants will be Dr. Daniel G. Aldrich, chairman, division of soils, College of Agriculture, University of California, Davis, Cal.; Dr. W. V. Bartholomew, agronomy department, Iowa State College, Ames, Iowa; Dr. George E. Smith, soils department, College of Agriculture, University of Missouri, Columbia, Mo., and Dr. W. B. Andrews, agronomy department, Mississippi State College, State College, Miss.

One of the features of the convention will be a trade show of anhydrous equipment. This will be open from 9 a.m. to 5 p.m. Dec. 5, from 8:30 a.m. to 10:30 a.m. and from 2 p.m. to 6 p.m. Dec. 6, and from 8:30 a.m. to 11 a.m. Dec. 7. There will be special entertainment in the trade show area at 11 a.m. and 2:30 p.m. Dec. 5.

A cocktail party is scheduled for the evening of Dec. 6 and the annual banquet will be held the evening of Dec. 7.

Cotton Conference To Stress Integration Of Production Practices

MEMPHIS — Fertilization offers good example of why the first annual Beltwide Cotton Production Conference, to be held Dec. 15-16 in Memphis, will consider a "package of production practices" for the farmer rather than each practice separately, according to the National Cotton Council.

The major problem of the cotton farmer today, the council points out, is producing high quality lint at a low per-acre cost. This is impossible without close attention to the fitting together of all production practices planned specifically for each individual farm.

Proper use of fertilizer involves timing, placement, and soil testing and all these must be blended into an over-all program that includes insect and disease control, weed control, possibly defoliation and irrigation, and other practices.

In the past, separate conferences have been held on insect control, defoliation and weed control. The production meeting will consolidate these three, plus irrigation, disease control, plant spacing and fertilization.

The Memphis meeting will be attended by several hundred agricultural leaders from every state in the Cotton Belt. It is to be sponsored by the National Cotton Council in cooperation with land grant colleges in the Belt, the U.S. Department of Agriculture, the agricultural chemical industry, farm organizations and others.

Immediately preceding the conference, and held in conjunction with it, will be separate technical meetings of groups particularly concerned with defoliation, disease control, and insect control.

The technical aspects of these practices as well as methods of fitting them together for a more efficient production program will be the principal challenge to the agricultural experts attending the two-day conference.

Books on Fertilizers And Their Use

MANUAL ON FERTILIZER MANUFACTURE—Second Edition Vincent Sauchelli

A complete up-to-date revision of this well known book, that reviews in simple, everyday language the processes of manufacture of superphosphates, of ammoniation, and the formulation and preparation of mixed fertilizers. Indispensable to fertilizer plant supervisors and operators, and a valuable aid to research men and teachers. New chapters added: on plant nutrition, mixed fertilizers, ammoniation, granulation, revised and brought up-to-date. 80 tables of practical information..... \$4.50

HUNGER SIGNS IN CROPS—Second Edition

A symposium — published jointly by the American Society of Agronomy and the National Fertilizer Association.

A comprehensive study of nutrient-deficiency symptoms in crops compiled by 19 of the leading authorities in the field. It is being widely used by college professors, research and extension specialists, industrial chemists and agronomists, county agents, and teachers of vocational agriculture. Many farmers have found it of particular value in planning their fertilizer programs. Cloth bound, 390 pages, 242 illustrations, including 124 in full color.... \$4.50

USING COMMERCIAL FERTILIZER (1952)

Malcolm H. McVickar

Dr. McVickar is chief agronomist of the National Fertilizer Assn. The book deals specifically with commercial fertilizer, how it is produced and how to use it. It is non-technical. It includes chapters on how to measure fertility of soils, secondary and trace-element plant foods. 208 pages, 106 illustrations, cloth bound \$3.00

THE CARE AND FEEDING OF GARDEN PLANTS

Published jointly by the American Society for Horticultural Science and the National Fertilizer Association.

An entirely new, one-of-a-kind book. It is designed to acquaint readers with nutritional deficiency symptoms or "hunger signs" of common yard and garden plants including lawn grasses, shrubs, flowers, garden vegetables, and cane and tree fruits. It stresses plant "feeding," or "what makes plants grow." Sixteen of the nation's leading horticultural authorities collaborated in its preparation. Cloth bound, 300 pages of text and illustrations including 37 pages in full color \$3.00

COMMERCIAL FERTILIZERS, Their Sources and Use—Fifth Edition (1955)

Gilbeart H. Collings

Based upon the author's practical experience as an experiment station agronomist and teacher, and incorporating information on recent developments by agronomists, chemists, engineers and fertilizer manufacturers. Authoritative on problems concerning commercial fertilizers and their use in gaining larger yields. 160 illustrations, 522 pages... \$8.00

COMMERCIAL FERTILIZERS, the World Economy in War and Peace (Nov. 1955)

Mirko Lamer

A Stanford University Research Institute book. 640 pages, charts, index, references. Plant nutrients and the environment; classification of fertilizers, availability of nutrients, yield response, consumption in various countries and the production potential. International trade in fertilizers \$10.00

PLANT REGULATORS IN AGRICULTURE

Dr. Harold B. Tukey

Published September, 1954. A textbook giving background material for county agents, farmers, citrus growers, nurserymen, gardeners; providing fundamentals and general principles; covers encouragement of roots by plant regulators, control of flowering and fruit setting, parthenocarpy, abscission, prevention of preharvest fruit drop, delaying foliation and blossoming, maturing and ripening, inhibition of sprouting and weed control. Brings together specialized knowledge of 17 authorities in the field, with two chapters written by Dr. Tukey, head of department of horticulture at Michigan State College. 269 pages \$5.50

MANURES AND FERTILIZERS

A survey by the Ministry of Agriculture and Fisheries, dealing with soil analysis, inorganic fertilizers, waste organic substances and principles of manuring. In language to give the farmer basic principles of increasing soil fertility by the application of natural organic manures and synthetic inorganic fertilizers. Many important tables on quantitative data \$2.50

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Miller Bill Adds More Responsibilities Along With Industry Benefits

The act commonly known as the Miller Bill became effective July 22, 1955, except as to a few specific pesticides and crops. The bill's objective is to regulate the amount of residue of any pesticidal chemical that can legally remain on any raw agricultural product when this product enters interstate commerce. This law culminates the efforts on the part of many interested groups to establish a satisfactory way of protecting the public from any hazards that might result from the use of pesticides.

There were, of course, other earlier laws and regulations covering the use of pesticides. For example, section 106a, the Food, Drug and Cosmetic Act of 1938 provided for the establishment of tolerances for food additives in general or specific proof of necessity for use. It did not, however, spell out a simple procedure for the establishment of such tolerances. Public hearings of the sort held in 1950 thus became necessary.

The Insecticide, Fungicide and Rodenticide Act of 1947 provided for a registration of all pesticides which took into account potential residues and efficiency of the material used. It has been said that the enforcement of the 1947 act gave effectively on an informal basis, the same protection to the consumer that the Miller Bill does.

This is largely true. Nonetheless, I am sure that all of us in industry who have sought tolerances for new materials under the Miller Bill will agree that the formalizing of these steps has added a heavy additional load to the efforts necessary to satisfy all the requirements. I believe this is perfectly fair and just that this work should be done. None of us wish to be remiss in any responsibilities that we have for protecting the consumer.

What then are our responsibilities? First, we must be able to show that the pesticide we propose to use is efficient. It must be efficient not only under certain limited conditions, but we must test it under different climatic conditions in different areas to make sure we know the limitations of its use. It must also not be injurious to the host plant or animal to which it is applied. This responsibility is one all pesticide manufacturers have recognized and assumed for many years and which was formalized under the Federal and State Insecticide Acts.

Secondly, we must know what residues are to be expected following the use of the new pesticide in the recommended fashion. This work involves the devising of analytical procedures, sensitive to a degree commensurate with the toxicity of the material. I would point out that to determine the amount of one part per million, which is indeed minute, of an organic chemical in the presence of the many thousands of organic chemicals already present in fruits and vegetables, is no mean task. In fact, 20 years ago many analytical chemists would have said that this was impossible.

The analysts have shown great ingenuity in devising these new methods, however. Once a method is devised and proved to be effective by the recovery of known amounts of the pesticide which have been added to the fruits or vegetables under question, the next step is to secure samples of the crop from a variety of locations under a variety of weather conditions and determine how much residue is present. The analytical work involved in first devising a method and then determining the

residues may well cost \$50,000.

A third responsibility is to determine the toxicity of the chemical. This, of course, is done by toxicologists working with laboratory animals. Frequently it is felt necessary to have two-year feeding tests on at least one species for safety in handling and application; the various routes of possible contact with the pesticide must be investigated such as skin penetration, inhalation, etc. Toxicological work is expensive and I would doubt if such a program could be carried out for less than \$50,000, if the two-year and 90-day tests are needed.

These three steps—establishing efficiency, determining residues and knowing toxicology—are prerequisite to applying for registration of a new pesticide. Of course, it must be shown that the residues that remain are not hazardous in spite of the inherent toxicity of the material. Further, and this is important, the tolerance established will be no greater than the minimum amount shown necessary to give adequate protection of the crop no matter how low the toxicity of the pesticide.

The approach is to see how much residue remains after following a recommended schedule and determine if this is safe, rather than to decide how much is safe and establish a tolerance on basis of safety only. I believe it is common to say that a rule of thumb is the residues that remain must be less than 1/100th of the amount which, if it were present in all of the items of the diet, would result in no effect on the laboratory animals. Sometimes a lower factor of safety is warranted; sometimes a higher one is necessary.

So much for the information necessary to set a tolerance. Industry's responsibility does not end here. It is necessary that we educate the farmer through our labelling and literature to use properly the new pesticide so that the farmer may expect residues no greater than those established under the Miller Bill. If a tolerance has been established for crop A and not for crop B, crop B cannot legally be sold or given away unless it has no residue at all. Thus, we must carefully spell out the crops on which the material may be used, the timing and number of applications which have been shown to result in less than a legal tolerance and the time at which the last spray can be applied in relation to harvest. If the new pesticide is broadly useful, you can see that the determination of residues and of directions for application to perhaps 50 different crops involves a very substantial effort. Industry is meeting these responsibilities very ably. It was feared that the information necessary to obtain residues would not be developed in time and that we would be in the chaotic situation where we needed to protect our crops but did not have the proper pesticides registered.

This fear has proven groundless and there has been little disruption of the spray schedules of the farmer. I should like to add that the USDA and the Food and Drug Administration have cooperated to the fullest in this effort to get all appropriate pesticides for which the residues were shown to be safe cleared as quickly as possible.

I think the passage of the Miller Bill will necessitate the search for new pesticides only in those fields where the potential market justifies the increased expense. I cannot imagine that it would be worthwhile attempting to find a new pesticide

EDITOR'S NOTE

This article, written by Dr. Richard H. Wellman, manager, Agricultural Chemicals Development Group, Carbide and Carbon Chemicals Division, Union Carbide Corp., New York, was presented before the New York State Insecticide-Fungicide Conference, Ithaca, N.Y., Nov. 8-10. Dr. Wellman has done a considerable amount of research on the costs involved in developing new pesticidal products, and in this article presents some of this data in the light of requirements of the Miller Amendment on the pesticide industry.

to control a disease where the acreage of the crop would never justify sufficient use of chemical so that the manufacturer could recoup his research investment. I think also that the pesticides in the future will be developed only by those companies with sufficient resources and patient money to engage in long-term programs.

These limitations may be completely necessary to protect the ultimate consumer; they may be inevitable under any adequate system; but at any rate, they certainly present a problem. In conclusion, although industry's responsibilities under the Miller Bill are heavy, they are just and I am proud to be a part of an industry that is faithfully attempting to carry them out.

CIRCULAR AVAILABLE

BLACKSBURG, VA.—Virginia Polytechnic Institute has issued a circular, "Crown and Stem Rot of Alfalfa and Clover," which describes conditions favorable to development of crown and stem rot, gives symptoms of the disease and recommends control methods.



James F. King

James F. King Named Assistant To Freeport President

NEW YORK—James F. King has been appointed assistant to the president of Freeport Sulphur Co., Langbourne M. Williams, president, has announced.

A graduate of Harvard in the class of 1929, Mr. King has held posts with various government agencies including the Central Intelligence Agency, the Defense Production Administration and the Department of Defense where he was assistant to army secretaries Kenneth Royall, Gordon Gray and Frank Pace. Prior to his government service, Mr. King was a newspaperman in South Carolina, Baltimore and Washington.

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INSECT AND PLANT DISEASE NOTES

Insects on the March, New Mexico Report Says

STATE COLLEGE, N.M. — The aphid with two names—formerly the yellow clover aphid and now the spotted alfalfa aphid—is on the rampage again. It's causing severe damage to seedling alfalfa stands in the Hatch area of Dona Ana County. The spotted alfalfa aphid also wiped out a seedling stand of sweet clover. Both winged and wingless forms were found on the clover, and colonies of nymphs and adults were found on the undersides of the leaves—all of which would indicate the aphids were reproducing on the clover.

Growers were being warned late in November to keep a close watch on alfalfa stands, especially stands of seedling alfalfa. "Cold weather doesn't stop this aphid. In fact, winter conditions seem to be in its favor because insecticides used to control the spotted alfalfa aphid are less effective at low temperatures," the bulletin says.

Spotted alfalfa aphid is heavy on most seedling stands in Dona Ana County but light to non-existent on established stands. It was reported in San Juan County for the first time where 1,200 to 1,500 acres of alfalfa are heavily infested. Ten acres of seedling sweet clover in the Hatch area of Dona Ana County, were destroyed. This is the first time sweet clover (*Melilotus indicus*) has been reported as a host for this aphid in New Mexico.

San Jose Scale is heavily infesting apple trees in one orchard in the Espanola Valley, Rio Arriba County; orchard mite eggs are very heavy on apple trees in Espanola Valley of Rio Arriba and Santa Fe counties; a nitidulid beetle has been reported as being heavy on sesame blooms and rose bloom in Dona Ana County.

Grasshopper adult survey indicates that a total of 2,851,090 acres of crop and range lands will be infested next year. Infestations on rangelands make up 2,753,340 acres, while the remaining 97,750 acres are infested crop lands.

The dominant species on crop land are *Melanoplus mexicanus*, *M. femurrubrum*, *M. differentialis*, and *M. bivitattus*.

During 1955, 458,003 acres of rangeland were sprayed for grasshopper control at the total cost of \$205,674.75. Control operations on

rangeland were carried out by the Grasshopper Control Project under the supervision of G. F. Fulkerson. The cost of control was divided equally among ranchers, the state and the federal government.

Control of grasshoppers on cropland areas was carried out on approximately 10,620 acres at an estimated cost of \$8,000.

Sorghum Midge Doing Damage in South Carolina

CLEMSON, S.C. — Sorghum samples taken at Clemson showed that the head had been decreased in size by from 28 to 42% because of damage caused by the sorghum midge, or possible other factors. The sorghum midge occurs at the time that the grain is being pollinated and is caused by the small worms boring into the grain and preventing normal filling out of the grain.

Sorghum midge is distributed throughout Laurens County. According to County Agent Cannon, damage is scattered throughout the county, in varying degrees of intensity.

Complaints of the presence of sawtooth grain beetle have come from Anderson, S.C. A miller there states that this pest is one of the most serious problems that they have ever had in 40 years of milling grains. Entomologists say that these pests are probably brought in with grain and that the mill is being continuously infested.

Seasonally cooler weather in the Charleston area has caused a decline in the number of insects caught in light traps. Among those present are black and granulate cutworm, velvetbean caterpillar and grassworm. The same is true of the Clemson area, where the insects caught include the following cutworms: dingy, clay-backed and pale-sided. Grassworm and the true armyworm were also found.

IMC DIVIDEND

CHICAGO—The board of directors of International Minerals & Chemical Corp. has declared the regular quarterly dividend of \$1 per share on the 4% cumulative preferred stock of the corporation, payable Dec. 30, 1955, and a quarterly dividend of 40¢ a share on the common stock, payable Jan. 3, 1956. Both dividends are payable to stockholders of record Dec. 16, 1955.

USDA Forms Defense Line To Halt Entry and Spread Of Diseases and Insects

Heavy responsibilities weigh upon those of us in the Federal Service whose job it is to guard our agriculture and food supplies against various diseases and infestations of pests. These duties are numerous, taking on a many-sided aspect.

Consider some of the duties expected of Federal Service people in this regard. We must prevent insects and diseases of foreign origin, which may endanger our crop plants and farm livestock, from entering the U.S. We must combat the spread from state to state of injurious diseases and pests of national importance which are already in this country.

We must assist in control and eradication of outbreaks of serious diseases and pests; assure consumers of getting clean, wholesome supplies of meat and meat products; to assure that insecticides, fungicides and rodenticides are properly labeled and are offered with appropriate recommendations for use.

What is the first line of defense against the introduction of any new diseases and pests? The best such defense lies in the quarantine and inspection activities at ports of entry.

As international air travel increases, so do the chances for introduction of both animal and plant diseases, plus the possibility of introducing insect pests from far-away places. Increased air traffic offers the most complicated phase of our work.

Tremendously-increased numbers of livestock are being imported by air, and the possibility of their bringing diseases with them is very real, since air travel is fast enough that it outruns the normal incubation period of nearly all diseases. All imports must therefore be checked carefully.

The story with respect to our work in protecting against contraband plant material and insect pests is similar to that in dealing with animal diseases. Plant quarantine officers at ocean ports had almost double the number of ships to inspect last year that they had in the years before World War II. The number of airplanes in foreign travel that were inspected, however, was 17 times greater. Unauthorized plant material was found in about a third. Cross-border land travel also has increased substantially. Speed is a factor here, too.

Motor vehicles crossing the Mexican border last year numbered 15 million. In 1939, the number was 4 million.

The steady increase of foreign travel and trade brings a variety of new complications. Take the matter of passenger baggage. It's a real problem. A traveler who wouldn't think of smuggling in diamonds doesn't see anything wrong in bringing in a couple of oranges, an exotic plant that has taken his fancy, or even a pet goat. Passenger baggage provides a large loophole in our line of defense against pests and quarantined plant materials.

Inspection of baggage, of course, is a job of the Bureau of Customs, and the customs people have maintained awareness of our interest. Working relations have been cordial. Cooperative studies this year, however, have shown that less than half the contraband plant and animal materials arriving in passengers' baggage is being intercepted in the port of New York under the recently revised customs' inspection methods necessitated by shortages in manpower. Observa-

EDITOR'S NOTE

This article comprises excerpts from a talk by Dr. M. R. Clarkson, deputy administrator, Agricultural Research Service, U.S. Department of Agriculture, before the National Association of Commissioners, Secretaries and Directors of Agriculture, New Orleans.

tions at other ports indicate conditions are somewhat similar there. Not only plant materials, but the pests infesting them are escaping detection in baggage.

We receive considerable help in number of the states, but even so the general picture is sufficient to call for a sharp, long look at this threat and the resources we have for overcoming it. We are discussing this problem with the customs now and hope to have a better solution and the means for carrying it out by next year.

The importance of maintaining leak-proof first line of defense is demonstrated by the troubles we are having with the khapra beetle. In years past this beetle—termed by many as the world's worst pest of stored grain and seeds—was successfully turned back at ports of entry as an undesirable immigrant. But somehow it has slipped through, perhaps as early as 1946 during the stresses of World War II, and it was found first in a California warehouse.

Since then, the khapra beetle has also been located in storage places in Arizona and New Mexico, and the burden on our second and third lines of defense has increased accordingly. This year a federal quarantine was established, and working in cooperation with the state authorities, warehouse operators, and others, the long, costly job of holding this pest in check, and eradicating it, has gotten underway. At the same time, research also has been started to learn more about the life history and habits of this pest, so that the most effective methods to stamp it out could be devised.

More than 40% of the money used so far from the million dollar contingency fund Congress authorized for this year to handle emergency outbreaks of insects and plant diseases, has gone into the fight on the khapra beetle. But this is only a small part of the cost. The state and warehouse operators themselves have spent more.

A method of encapsulating an entire warehouse with plastic tarpaulin has been worked out with California officials and the industry. It makes the building air-tight for fumigation. This disposes of other grain pests as well, leaving no harmful residue in grains destined for human consumption. The treatment has given a 100% kill of the khapra beetle with no recurrence noted one year later. Recently, a 3 million cubic foot warehouse was fumigated by this method and released from quarantine.

Grain sanitation is an important adjunct to fumigation in preventing spread of the beetle, since young larvae cannot attack whole kernel of grain but must survive on the crumbs. More attention is needed here.

The khapra beetle is only one reason why our defense lines must remain tight. It has been necessary also to draw on the emergency control fund this year to combat the burrowing nematode in Florida citrus groves; grasshoppers on more

than 1.5 million acres in the western states; a break in the area; the Mexican California, Mexican chafar and New England.

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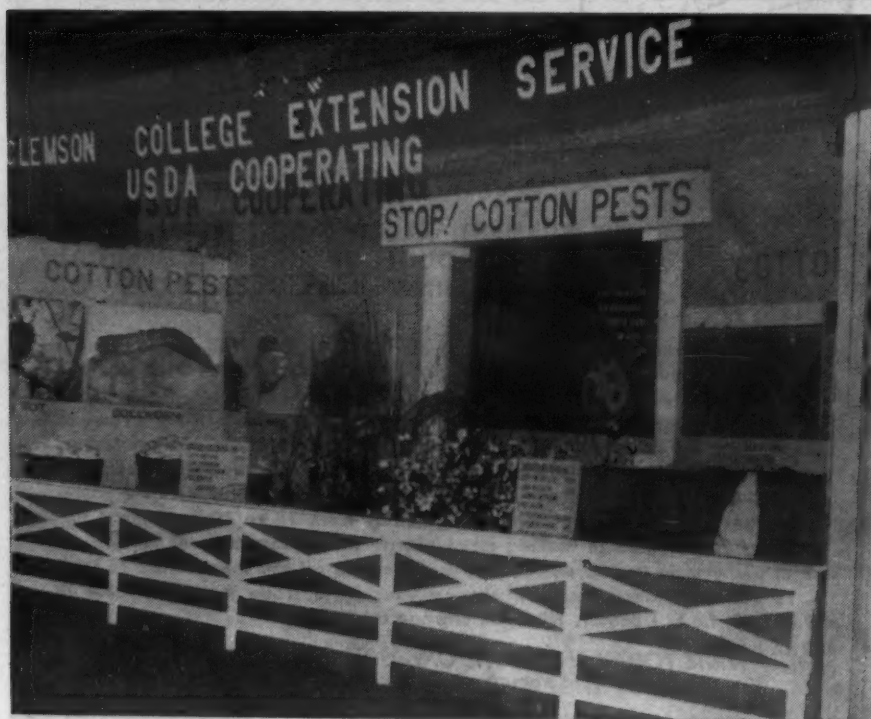
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CLEMSON EXHIBIT—"Cotton pests cut profits," was the theme of the Clemson College Extension Service exhibit at the annual South Carolina State Fair in Columbia. Centerpiece of the exhibit was display of treated and untreated cotton plants showing comparative yields. Behind this, replicas of cotton "bugs" move across a stage.

than 1.5 million acres in 12 western states; a Mormon cricket outbreak in the Nevada-Utah-Idaho area; the Mexican fruit fly in southern California and northern Baja California, Mexico; and the European chafer in the mid-Atlantic and New England areas.

Emergency outbreaks don't tell the whole story. The list of well-established pests occupying our attention is a long one. I need only to mention some of these pests to remind you of hard battles—not all of which have been won. Consider the following:

The Japanese beetle, spreading over 15 New England and mid-Atlantic states and with established outposts in 6 more.

The golden nematode on Long Island.

The white fringed beetle in eight southeastern states, with outposts in New Jersey and Tennessee.

The pink bollworm in six southwestern states, with explosive concentrations in south Texas.

The sweet potato weevil infesting fields in seven states.

The citrus blackfly and the Mexican fruitfly threatening from across the Mexican border, and sporadically getting a foothold in Texas.

The gypsy moth in New England and New York, but recently showing an ability to hop over the quarantine and spread not only into Pennsylvania and New Jersey, but much farther west.

Eradication of the gypsy moth from New Jersey between 1920 and 1939 and from Pennsylvania between 1920 and 1949 was accomplished only at great expense to the states and the federal government. Perhaps recollections of that campaign were in mind when the gypsy moth committee of the Council of State Governments recently recommended intensification of protective measures. Many agencies cooperated this year in the spraying of a million infested acres, and of the buffer zone being established at points where danger of spread is the greatest.

This "containment action," it is hoped, will be effective.

New pests always threaten. We are watching closely the situation in southeastern North Carolina where the soybean nematode, up to now known only in Japan and China, has been causing severe damage. This cyst-forming nematode was observed first in August, 1954. We may have here a pest just as difficult to control as the golden nematode of potatoes, and we are quite concerned over the possibility of it becoming established in other soybean areas.

A potentially serious threat also is posed by the discovery recently of the Mediterranean fruitfly in Costa Rica. This is the first appearance of the pest in the Western Hemisphere north of Brazil since it was eradicated in Florida in 1929, and prompt preventive action has been taken, not only in this country, but in Mexico as well.

In pointing to some of our trouble spots, I do not mean to imply that the work of control and eradication has been unsuccessful. I'm merely emphasizing that a destructive crop pest seldom remains a local problem. It doesn't recognize international, national, state or county lines. This applies to grasshoppers and other native pests as well as to those that have been introduced from foreign sources.

The importance of preventive action is shown by the record. We have records of 94 introduced insect species that are now of major economic importance in this country. Only 26 of these have been reported since the plant quarantine act became effective in 1912. And that despite the fact that opportunities for the introduction of new insects and plant diseases have increased a thousand-fold.

Chipman Chemical Makes Organizational Changes, Transfers

BOUND BROOK, N.J.—Chipman Chemical Co., Inc., has announced a number of organizational changes and transfers effective Nov. 15.

Blanchard J. Smith, who has been district manager of the Texas and southeastern divisions, becomes a vice president and a director of the company with offices at the Bound Brook, N.J., headquarters. He will have general supervision of sales and traffic departments. Mr. Smith joined Chipman in 1938 as a salesman.

I. W. Bales remains as vice president in charge of research and technical service, and also will supervise purchasing and production.

C. A. McAloon, who has been secretary and assistant treasurer of the firm, assumes the added duties of comptroller.

Linden E. Harris, agronomist and assistant manager of the Northwest division at Portland, Ore., comes to Bound Brook as director of herbicide research and technical service. Mr. Harris started with Chipman as an agronomist in 1944.

Frank J. Seibert, with Chipman since 1934, retires as chief chemist and plant superintendent as of Feb. 1, 1956, but will continue to be associated with the company as a consultant.

C. A. F. Holstein returns to the company Jan. 1, 1956, as production manager. He was with Chipman from 1942 to 1952.

Roger B. Coleman advances from salesman, railroad division, to assistant railroad division sales manager and will be located at Bound Brook.

J. D. Humsey, who has been in charge of the Bound Brook order and billing department, will assist the sales manager on exports, and will remain at Bound Brook.

W. S. Meyer, formerly of the Bessemer, Ala., office, will be supervisor of Chipman's three Chicago district plants at Clearing, Ill., North Kansas City, Mo., and St. Paul, Minn.

D. W. McCallum advances from salesman in the Midwest area to assistant district manager, Chicago district.

W. B. Parker of the Texas staff, becomes district manager, Pasadena, Texas territory, and C. H. Johnson of the Bessemer, Ala., branch becomes district manager of that territory.

T. E. Cowan of the Portland, Ore., sales force will be assistant manager of that district and will be in charge of railroad and industrial sales.

J. C. Driver, also of the Portland branch, will be in charge of technical service for that area.

Chipman has also added materially to its sales and technical staff throughout the country.

Production of Superphosphate Shows Gain in September

WASHINGTON — U.S. production of superphosphate during September amounted to 182,093 short tons (100% A.P.A.), according to the Bureau of the Census, Department of Commerce. This figure represents an increase of 33% from the revised August, 1955, output and is 14% more than the figure reported for the corresponding month of 1954.

Shipments of all grades of superphosphate totaled 116,167 tons for September or an increase of 30% from the previous month's volume and is 7% more than the figure reported for September, 1954.

Stocks on hand at the end of September were 5% more than those held Sept. 30, 1954, and 3% greater than the quantities on hand as of Aug. 31, 1955. These monthly figures (including percentage changes) are unadjusted for seasonal variation and number of working days.

HEADS CROP GROUP

CLEMSON, S.C.—Robert H. Garrison, in charge of seed certification for the South Carolina Crop Improvement Assn., has been elected president of the International Crop Improvement Assn.



Patterns of Progress and Profit

(Photo—Courtesy Soil Conservation Service, U.S.D.A.)

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WITH FERTILIZER SAFETY GROUP—New officers named at the Oct. 17-18 meeting of the Fertilizer Section of the National Safety Council at La Salle Hotel, Chicago, are shown in the top photo and they are, left to right, R. G. Diserens, Phillips Chemical Co., Bartlesville, Okla., secretary; Curtis A. Cox, Virginia-Carolina Chemical Corp., Richmond, Va., general chairman, and E. O. Burroughs, Jr., F. S. Royster Guano Co., Norfolk, Va., vice chairman.

In the second photo outgoing general chairman, Thomas J. Clarke, GLF, Ithaca, N.Y., right, receives a certificate of appreciation on behalf of the NSC, from Vernon S. Gornto, Smith-Douglass Co., Norfolk, Va., past chairman of the Fertilizer Safety Section.

A general view of luncheon meeting held final day of convention is shown in the third photo. J. C. Kato, National Safety Council representative; Paul T. Truitt, executive vice president, National Plant Food Institute, Washington, D.C., and William Stone, Wilson & Toomer, Jacksonville, Fla., are in the lower photo. (A complete report of meeting appeared on page 1, Croplife, issue of Oct. 24.)

Boston Set to Fight Dutch Elm Disease

BOSTON—All out war has been declared against spread of the Dutch elm disease, which has destroyed 2,594 shade trees this year in Boston parks, by Frank R. Kelley, park commissioner.

Mr. Kelley has ordered his department to do everything possible to halt the spread of the disease which threatens historic Boston's many Elm trees. He instructed Arthur A. English, park superintendent, to start immediately a \$250,000 tree planting program.

The Dutch Elm Blight has spread throughout New England this past year, and studies are under way to find some means of combatting the disease which threatens not only Boston, but the entire six New England states. Providence, R. I. has had a bad seige of the blight and many historic elms there had to be felled, some reportedly 300 years old.

New Plant Nutrient To Be Offered by Crown-Zellerbach

SAN FRANCISCO—A new corrective for iron deficiency in plants has been developed by the Crown-Zellerbach Corp. of San Francisco, and will be marketed by this firm starting in 1956.

Known as "Greenz 26," the chemical is a by-product of the pulp and paper making process, and it will be used as an agricultural mineral. The iron chlorosis which "Greenz 26" is expected to correct is typified by a yellowing of the leaves of trees and plants.

Inventor of the chemical is Dr. J. P. Bennett, formerly a member of the staff of the University of California at Berkeley. Dr. Bennett is a recognized authority on iron chlorosis, having devoted considerable study to diagnosing and treating this deficiency.

For the past two years Dr. Bennett has been working on the development of the new product in collaboration with C. Emlen Scott, extension plant pathologist, and "Greenz 26" has been under test on pear fields near San Jose, California.

Increase Noted in Michigan County Tests

HART, MICH. — A report on the work of the soil testing laboratory of the Oceana County Cooperative Extension Service office reveals the increase in the use of testing soil for fertilizer needs. Oceana County, along Lake Michigan and north of Muskegon, Mich., is one of the leading counties in the nation in the production of tart cherries, pickles and other crops.

William J. MacLean, county agent, reports that during the first year of the soil testing lab, 1,200 samples were processed. This produced an average of about 100 per month. But during the next six months, according to Mr. MacLean, the lab has tested more than 1,000 samples, for a monthly average of 166.

Soybean Weed Control

ST. PAUL — A recent survey of Minnesota soybean growers showed that only 8% of 257 farmers answering had attempted any sort of weed control. Still, 40% listed weeds as the principal problem limiting soybean production in the state.

HORTICULTURISTS TO MEET

PULLMAN, WASH.—Dr. D. Gale Johnson, University of Chicago, a member of the U.S. farm delegation to Russia this past summer, will report on the trip during the annual meeting of the Washington State Horticultural Assn. in Wenatchee Dec. 5-7.

Insect Control Keeps New Mexico Orchard Producing

FAYWOOD, N.M. — One of the largest apple orchards in this area is the result of a few trees first started over 30 years ago. Now Mr. and Mrs. Grover McSherry are producing over 10,000 bu. apples yearly to supplement the ranch income. In fact, the apples have become more important than their eleven square miles of grassland.

Mr. McSherry says his apples have shown a profit for the last 23 years though there is a constant fight against insects throughout the season. He has a spraying rig which costs \$10,000 and is capable of 800 lb. pressure. It can spray 50 gallons minute from 11 nozzles.

During an average year Mr. McSherry puts on one dormant spray and six cover sprays. The main insects he must control to get a good apple harvest are the codling moth, two-spot red spider and woolly aphids. He uses moth traps in the orchard to determine insect activity and the proper time to control them. Without stringent control methods to keep down insects, the apple crop would be a complete failure every year, he says.

Mississippi Insect Control Conference Planned for Jan. 5-6

STATE COLLEGE, MISS. — The second annual Mississippi Insect Control Conference will be held at Mississippi State College, Jan. 5-6, 1956, according to A. G. Bennett, extension entomologist at Mississippi State College.

The conference will be highlighted by a discussion of the "Miller Law" as it applies to insecticide residues, especially on vegetables and other food crops. The seeming build-up of resistance to insecticides by many harmful insects will also be discussed.

Highlights of Mississippi research on insect control will be another feature attraction to formulators, insecticide dealers and practicing entomologists attending the conference.

Those in attendance will also hear a nationally known authority discuss the latest developments in the use of systemics in cotton insect control and livestock parasite control. Mr. Bennett stated. The researcher is K. P. Ewing, in charge of the Cotton Research Branch, Research Division, U.S. Department of Agriculture, Beltsville, Md.

The Mississippi Entomological Society will also hold its annual meeting in connection with the conference, at which time officers for the coming year will be selected.

Nutritional Concentrates, Garden Research Merge

NEW YORK—Merger of Nutritional Concentrates, Inc., with Garden Research Laboratories has been approved. Officers of the new firm are J. R. Pursell, Jr., Pittsburgh, chairman of the board, and C. H. Snyder, New Lexington, Ohio, president.

Nutritional Concentrates manufactures equipment for applying water-soluble fertilizers and other chemical concentrates, and Garden Research makes plant food.

Kentucky Sales

LEXINGTON, KY.—Kentucky fertilizer sales during September totaled 17,130 tons, according to the state Department of Feed & Fertilizer. The total, which includes 12,407 tons of mixed goods, is lower than the 19,914 tons reported in September, 1954. Sales during July-September this year totaled 33,388 tons, compared with sales of 35,778 tons during the corresponding period last year.

Reader Views

To The Editor:

"The editorial on 'Misusing Soil Tests,' which appeared in the October 17, 1955 issue of Croplife, was, in my opinion, timely and worthwhile. If those concerned with the use and sale of fertilizer will read the editorial and heed your comments, I feel that farmers and the fertilizer industry would benefit.

"I would like to call to your attention one statement in the last paragraph of the editorial that is definitely an under-statement. The second sentence of the paragraph reads: '... by men well-trained in analytical chemistry and perhaps agronomy. ...'

"To accurately test soil, it may not be necessary for a person to be well-trained in agronomy. However, in the interpretation of the soil test into lime and fertilizer recommendation, it is of importance that a man be well-trained in agronomy. A soil test itself is worthless unless it is properly interpreted on the basis of field experimental correlations and the factors that affect the correlation.

"Besides this one point, I feel that the editorial is very good and I hope that you will continue to follow this line of reasoning in your magazine."

—William F. Bennett, extension agronomist, Iowa State College, Ames, Iowa.

New Jersey Scientist's Discovery May Aid in Better Insect Control

NEW BRUNSWICK, N.J. — The discovery that hyaluronidase, an enzyme, occurs in non-venomous insects as well as in wasps, bees and mosquitoes, was recently announced by Thomas M. Stevens at a meeting of the Headlee Fellowship advisory council here.

Mr. Stevens, a Headlee fellow for two years, indicated that his work indicates a much more far-reaching role for hyaluronidase in the life processes of insects, than was heretofore believed.

The enzyme was believed to function simply as a spreader of venom in the victim of wasps and other insects, but Mr. Stevens' discovery could now lead to insect control methods based on inhibiting the action of this enzyme.

The Headlee Fellowship now has a principal fund of more than \$44,000, it was reported at the meeting by Dr. Harry L. Haynes, chairman of the finance committee. He is with the Carbide and Carbon Chemicals Div. of Union Carbide Corp., Yonkers, N.Y.

Fred C. Swift, appointed to a fellowship this fall, outlined his proposed research to the council. Two of the questions which he expects to explore are: "Why is the female of the species more resistant to insecticides than the male?" And "By what mechanism is an insect able to detoxify a poison?"

An answer to the second question would explain how insects achieve resistance to insecticides.

Research carried on by Headlee fellows over the past 11 years was summarized by Dr. Andrew J. For-gash, assistant research specialist in entomology.

Fourteen of the 34 commercial, industrial and agricultural firms supporting the Headlee Fellowship were represented at the advisory council meeting, which was presided over by Dr. Franklin C. Nelson, Roselle, N.J., Esso Standard Oil Co., representative who is council chairman.

The council was welcomed to the Rutgers University campus by Dr. William H. Martin, dean and director of the College of Agriculture and the Experiment Station.

USDA Sees Bright Future for Sesamolin As Synergist's Structure Is Determined

WASHINGTON, D.C.—Determination of the chemical structure of sesamolin, a synergist that is reported to increase the insecticidal potency of pyrethrum, has been achieved by a USDA research chemist, Dr. Morton Beroza, according to an announcement from the Department last week.

Sesamolin, itself not an insecticide, is derived from the oil of sesame seed. This plant was harvested from nearly 15,000 acres this year, particularly in Texas and other southern states. Larger plantings are anticipated for subsequent seasons, USDA says.

Dr. Beroza's findings are said by USDA to lay the groundwork for development of a satisfactory commercial process for extraction of sesamolin from the oil of sesame seed and also possible development of a synthetic compound that will duplicate the synergistic effect of natural sesamolin in pyrethrum.

In its announcement of Dr. Beroza's discovery, USDA comments that "increasing availability of sesame oil helps to make it a promising source of the synergist. New strains of the sesame plant, carrying non-shattering seeds which make them suitable for mechanical harvesting, have been developed through cooperative State-USDA research and are now being cultivated."

In his work on this project, Dr. Beroza found that sesamolin's distinguishing structural feature was a methylenedioxyphenoxy molecular grouping, slightly different

from synergists now being incorporated in some 50 million pounds of insecticides containing pyrethrins or related materials now sold in the U.S. each year.

The scientist has reported the synthesis of 66 new chemical compounds containing this particular molecular structure, many of which proved to be excellent synergists. Some, he found, were superior to the best commercial synergists now available, but none was as good as natural sesamolin.

The best commercial synergists, when mixed with pyrethrum in a ratio of 5 to 1, make the insecticide about 12 times more effective against flies than pyrethrum without a synergist. Chemists and entomologists of the Agricultural Research Service have found, however, that mixing sesamolin with pyrethrum in a ratio of only 1 to 1, increases the insecticide's fly-killing power by 31 times. In addition, it boosts the already potent "knock-down" ability of pyrethrum.

Willard P. Scott in New American Potash Post

LOS ANGELES—Willard P. Scott, a director of American Potash & Chemical Corp. since 1951, has been appointed a vice president of the company, it has been announced recently by Peter Colefax, president. Mr. Scott will remain a partner of the New York law firm of Oliver & Donnelly, general counsel for American Potash & Chemical Corp.

Poulsen Insecticide Plants Increase Production for Oasis Chemical Co., Inc.

A recently installed Poulsen R.T.R.* Uni-Blender insecticide compounding plant, at left, is producing Oasis Brand insecticides in Imperial, California. It is a dual unit with 40 cubic feet capacity; three to four batches per hour. At right is a Poulsen R.T.R. Uni-Blender liquid formulating system.

*R. T. R. Ready-to-Run U.S. Pat. No. 2,591,721



Poulsen R.T.R.* Uni-Blender plants, like the ones above, can increase per-hour production and greatly reduce hand operations and maintenance costs. Poulsen Uni-Blenders are ready to produce in these fields: compounding and liquid formulating for insecticides, chemicals, etc.; feed milling for poultry and hogs; commercial fertilizer, and compounding for soaps and detergents. Other complete plants for sulphur and inert materials, dehydration, and feed mills for cattle, are also made by Poulsen Company.

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Dr. Nat C. Robertson

Nat C. Robertson to Head Research for Escambia Bay

NEW YORK—Dr. Nat C. Robertson of Wellesley, Mass., has been appointed director of research for Escambia Bay Chemical Corp., whose multimillion dollar petrochemical plant at Pensacola, Fla., is nearing completion. It is scheduled to build a large polyvinylchloride plant in 1956, and later a vinyl and an acetone plant.

Mr. Robertson, a native of Atlanta, Ga., will make his headquarters temporarily with the National Research Corp. at Cambridge, Mass., where he has been director of its petrochemical department several years. He will continue to direct research activities already underway for Escambia Bay at Cambridge.

From 1947 to 1951 Dr. Robertson was in charge of a physical chemistry research group with the Celanese Corporation of America. During the war he was connected with Standard Oil Development Co. and conducted special research projects in the field of synthetic rubber.

Dr. Robertson did undergraduate study at Emory University at Atlanta and received his doctorate in physical chemistry from Princeton University in 1942, where he did post doctorate work for a year.

Program Set for South Dakota Dealer Short Course

BROOKINGS, S.D. — The program has been set for the sixth annual South Dakota Fertilizer Dealers Short Course to be held in Pugsley Union at South Dakota State College here Dec. 2.

South Dakota State College staff members will talk during the morning session, which will be presided over by L. M. Bond, Moorhead, Minn. On the program will be:

Ephraim Hixon, chief of the state division of Agriculture, welcome address; George Buntley, assistant agronomist, "The Soils of South Dakota"; L. O. Fine, professor of agronomy, "Fertilizer Treatments on Quality of Grain & Forage"; F. E. Shuck, associate agronomist, "Use of fertilizer on Corn"; L. F. Puhr, professor of agronomy, "Use of Fertilizer on Small Grains," and B. L. Prange, associate professor of agronomy, "Residual Effects of Fertilizer."

I. B. Johnson, director of the state Experiment Station, will preside at the afternoon session. Speakers will be M. E. Switzer, acting extension specialist, "Test-Demonstration Farms in South Dakota"; K. Peter, Phillips Petroleum Co., Omaha, "Dealers and Farmers' Problems in Handling and Storing of Fertilizers," and H. H. McVickar, National Plant Food Institute agronomist, Washington, "Fertilizer Trends and Outlooks."



WEED IDENTIFICATION EXHIBIT—This display at the Rutgers University pesticide conference, Nov. 16, attracted considerable interest. Here Charles H. Nissley, extension vegetable specialist at Rutgers is explaining the peculiarities of storksbill. Listening to his talk are Edward K. Bender, agriculturist with American Cyanamid Co., Silver Springs, Md.; Dr. Spencer H. Davis, extension plant pathologist, Rutgers U.; Dr. Leland G. Merrill, Jr., extension entomologist, Rutgers, and Lou Abrams, Seabrook Farms, Inc., Bridgeton, N.J. Dr. Merrill was co-chairman of the meeting.

NEW JERSEY CONFERENCE

(Continued from page 1)

and certain other orchard diseases, according to Dr. Robert H. Daines, plant pathologist. Laboratory work was followed with limited orchard trials during the past season, but more tests will be needed, it was pointed out.

Mercury compounds worked best against scab this year, it was reported, with captan also giving good control. Dr. Daines suggested a ground spray of elgetol with or just before the regular ground spray in orchards where scab was a severe problem this year.

Ryania as a late season pesticide to avoid residue problems was discussed by Dr. B. F. Driggers, entomologist. This insecticide was developed at Rutgers under a Merck fellowship, and was said to have given good codling moth control in South Jersey this year.

The New Jersey Station is more or less standing pat on its weed control recommendations, meanwhile getting ready to test the "flood of new herbicides" on the way, according to Donald A. Schallock, extension crops specialist. To make more effective use of existing chemicals, weed identification schools will be held May 15 and 16.

A discussion covering the alfalfa weevil indicated that New Jersey had gotten off easy with this pest, but it came into South Jersey in 1952 and has been spreading every year. It is expected to invade Burlington County in 1956 in its northward march.

Robert S. Filmer, station entomologist who has been in the midst of the alfalfa weevil battle, recommended dieldrin, heptachlor or lindane at 1/4 lb. to the acre for a single spray program on first cutting, when most stems are 6 to 8 in. tall. In this case, growers must make the first cutting when alfalfa is in the bud stage to prevent heavy feeding losses. Second and third cuttings must be allowed to go to half bloom before harvest, he said.

For a two-spray program, when growers cannot cut in the bud stage or want additional protection, the recommendation is to use one of the chemicals mentioned for the first spray and follow with either parathion, 1/4 lb., or malathion, 1/2 lb., or heptachlor, 1/4 lb. This is applied on first cutting about mid-May in

South Jersey and at least two weeks before harvest, to avoid residues.

Whether the single or double program is followed, a stubble spray immediately after first cutting was urged. The recommendation for this is dieldrin, 1/4 lb., or heptachlor, 1/4 lb.

A team went to work on the nematode problem in New Jersey this year. Dr. Martin T. Hutchinson, entomologist, reported that in 500 samples of crops or soil, nematodes were found in vegetables, fruits, forage and grain crops and ornamentals, with strawberries and corn heaviest hit.

In all, 17 nematode genera have been found. Most common ones are the meadow or root-lesion nematode, root-knot, stilet and lance nematodes.

It's much too early to talk about results, Dr. Hutchinson said, but the objective is one of sufficient control to grow a crop, rather than eradication. Complete elimination is virtually impossible as long as there is traffic from one field to another, with nematodes carried in soil on shoes and tractor tires.

Dr. Elton J. Hansens had encouragement for dairymen who fight house flies in the barn. Reporting tests in 44 barns last summer, he said diazinon came out ahead of all materials tried. With 1% wettable powder or emulsifiable solution, at least 12 weeks of fly control resulted. Half as much insecticide gave effective control for 7 to 12 weeks.

Treatment for control of biting flies—horn, stable and horse flies—pays off, Dr. Hansens also reported. Significant increases in milk production were found among test cows protected with water emulsions of methoxychlor and methoxychlor plus butoxypolypropylene glycol (Cräg fly repellent). The gain could amount to as much as a dollar a cow, the experiments showed.

More than 160 dealers attended the one-day meeting.

RANGE GROUP TO MEET

FORT COLLINS, COLO. — The ninth annual meeting of the American Society of Range Management will be held at Denver, Jan. 24-27, according to Carl Herzman, extension soil conservationist at Colorado A&M College. The convention is expected to attract several hundred persons from about 12 western states.



WORLD REPORT

By GEORGE E. SWARBRECK
Croplife Canadian and Overseas Editor

The pesticide industry is comparatively young. Its sights are set on improving the product and the means of applying that product. Research is continuous. Many lines of investigation result from suggestions made by the users, for they have practical experience with pesticides and their application and know what can be done and, more importantly, what should be done.

For some years the British firm of Fisons Pest Control, Ltd. has been asking customer-farmers to send in reports about the crop spraying machines supplied. These reports came in from all over the world, the firm states, and the worthwhile suggestions submitted were used to aid the design of a complete new crop sprayer.

Three types of sprayer have been evolved and after a year of field tests they are now in production. The machine is said to be particularly suitable for weedkillers and other chemicals of emulsion type, including insecticides and fungicides. Other characteristics are adaptability to fit various types of tractors, ease of fitting, foolproof operation, sturdy construction and low maintenance cost.

The crop sprayer comes in two low-volume models with 30 and 60 gal. capacities, and in a medium-volume model, capacity 60 gal. The latter is designed for medium-size and large farms, or for the farmer who needs a machine for many different kinds of jobs. It is tractor-mounted, and will apply all types of chemicals, either in solution or in suspension.

It's a case of good customer relations paying dividends.

Indian Plans

Further details have been revealed about India's plans for increased fertilizer production. Speaking at a fertilizer conference in New Delhi recently, P. N. Thapar, secretary of the Ministry of Food and Agriculture, disclosed that it is proposed to increase the consumption of nitrogenous fertilizers from about 140,000 tons of nitrogen in 1955-56 to about 370,000 tons in 1960-61. The production of different types of nitrogenous fertilizers to suit the soils of various regions in the country is already in the planning stage.

Mr. Thapar reported that in 1958, the Sindri fertilizer factory is expected to make a start with the production of about 23,000 tons of urea and about 126,000 tons of ammonium nitrate a year. Other factories will start production soon.

Under the terms of the second five-year plan, Mr. Thapar asserted, India must achieve a production target of 720,000 tons of superphosphates as against the present 100,000 tons.

Imports of fertilizer materials still take up a large slice of India's available foreign currency. The latest deal undertaken by the government involves the importation of 8,500 tons of nitrate from Chile.

South African Plant

Dr. F. Meyer, chairman of African Metals Corp., Ltd., reports that the construction of a new plant for the manufacture of 12,000 tons a year of dicalcium phosphate is proceeding satisfactorily. The new enterprise is looked upon as of primary importance in South Africa. It will not be necessary to import raw materials for supplies are readily available in the country.

The company owns phosphate rock deposits in the Saldanha Bay area of the Cape. Additional assistance will be forthcoming from the Phosphate Development Corp., which has erected

a plant to produce phosphate concentrates at Phalaborwa in northeastern Transvaal.

Dr. Meyer expects that when full scale production starts there will be little difficulty in selling all the dicalcium available on the local market. He forecasts that the demand will increase and it may be necessary to increase the capacity of the plant.

Peruvian Plant

Italian interests are combining with a number of Peruvian business leaders to build a plant for the production of ammonium products to be used as fertilizer. It will be ready in 1956.

The Peruvian company, Fertilizantes Sintéticos S.A., recently signed an agreement with Montecatini of Milan, Italy, for technical direction and consultation. Montecatini is financially involved in the project also. Capital requirements have been estimated at \$3,750,000.

Japanese Urea

Three firms, two Japanese and one American, are reported to be getting together to produce urea from natural gas in Japan. The Japan Natural Gas Chemical Corp., in association with the Sumitomo Chemical Co. and the Chemical Construction Co. of America are joining to form a new company, provided government approval on patents can be obtained.

In the first stage of the plan, to be undertaken at a cost of more than \$8 million, the plant will produce 2,400 metric tons of urea a month. In the second phase, the capacity will be doubled.

Locust Battle

Crops in Israel have been attacked by swarms of red locusts from the Sinai desert. They have penetrated hundreds of square miles between the Gaza strip and Beersheba. Damage to orange groves and winter crops has been assessed already at hundreds of thousands of dollars. Picking is already in progress in an effort to salvage some of the production.

Israeli air force planes have joined with those of the Ministry of Agriculture to fight the pests.

Australian Bounty

Under Australia's Sulfuric Acid Bounty Act, the government will pay a subsidy on sulfuric acid produced in Australia from indigenous pyrite during the period of five years from July 1, 1954.

The rate of the subsidy is \$4.48 to about 19¢ for each 56¢ by which the landed cost of imported brimstone is above or below \$44.10 ton.

Expenditure in 1955-56, the first full year of operation, has been estimated at a little under the equivalent of \$1,100,000.

DANIEL L. FITZPATRICK DIES
SOUTH ORANGE, N.J.—Daniel L. Fitzpatrick, Sr., 84, retired owner of the Jersey City Fertilizer Co., died here recently.

Better Selling

**Richer
Fields for
Dealers**
A SPECIAL CROPLIFE DEPARTMENT TO HELP RETAILERS IMPROVE MERCHANDISING KNOW-HOW

SHOP TALK
OVER THE COUNTER
FOR THE DEALER

By EMMET J. HOFFMAN

An alert dealer can create considerable promotional fanfare with successful crop demonstrations staged in his trade areas. The tie-up naturally should be that the fertilizer, insect control or other farm chemical products used in the demonstrations are handled by the dealer.

Promoting a successful demonstration can be through the channels of the local newspaper, radio, direct mail and in-store posters and displays. Seeing is believing and no farmer can dispute the proven results of an outstanding demonstration. Promoting good results of demonstration involves timeliness as well as getting the cumulative

benefits of repetition. In other words, there is a successful demonstration in your area in which your products played a part, you can gain immediate attention and publicity by calling well deserved attention to it for the benefit of the press and radio. After the results can be consolidated in your advertising and perhaps even a customer can be persuaded to use your product or products recommendation and endorsement.

**Example of
Promotion**

An example of prompt promotion of a product which, while not at the dealer level, can serve as a guide for dealers, is the action taken by Velsicol Chemical Corp. during the 1955 National Corn Picking Contest at the Cecil Lawson farm near St. Joseph, Mo. The company took quick action to promote its soil insecticide, heptachlor, when it was found that the official contest corn yield report stated that certain plots of corn treated with its product yielded almost double the number of bushels of corn per acre than was produced by similar plots not treated.

On-the-spot promotion at the corn picking contest was provided by a

HEPTACHLOR
VELSICOL CHEMICAL CORPORATION



EXHIBIT — The Velsicol Chemical Corporation's exhibit tent for farmers attending the 1955 National Corn Picking Contest near St. Joseph, Mo., attracted many who were seeking information about the advantages of controlling soil insects. The company's exhibit and distribution of a folder on soil insect control gave added promotional emphasis to the announcement of corn yields from a treated plot were well above the yields achieved from an untreated plot.

colorfully printed soil insect folder entitled, "Meet Another Champ from the 1955 National Corn Picking Contest—It's Heptachlor," and an exhibit.

Actually, thinking behind such a promotion originated early last spring when the Velsicol company, with official approval, established soil insect control plots in the acreage selected for the corn picking contest. A company report stated that at harvest time official yield reports established by University of Missouri extension service representatives indicated that the treated plot yielded 102.9 bu. per acre compared with the untreated plot yield of 52.8 bu. Both plots received the same amounts of fertilizer and both were irrigated.

The release of the official yield information came just a few days before the corn picking contest. To get out a folder necessitated some quick action on the part of the Velsicol people. In fact, work on the color folder was begun only five days before the completed publication was distributed prior to the start of the corn husking picking contest.

More than 4,000 folders were placed in the hands of farmers at the contest, company officials estimated. Thus, the results of the demonstration were quickly made known to thousands of potential customers at a

(Continued on page 12)

**GLF Store Displays
Invite Browsing,
Impulse Buying**

An excellent farm supplies display room can be found at the Grange League Federation store, Owego, N. Y., where fertilizer, insecticides and spray materials occupy an important place in a successful merchandising program.

Herbert Bean, manager, devotes several wall shelves and neat islands to a showing of insecticides and sprayers, and as a result a large number of impulse sales are made to the heavy traffic. Mr. Bean and his staff have laid out the store plan so that farmers can do a great deal of browsing if they wish.

Many of the shelves and items contain price placarding, so that self service is featured for those who wish this type of buying.

The firm does considerable lime spreading in spring and fall, and also spreads fertilizer for customers. Charges for this work run about \$1.25 per acre. Next year the store plans to do bulk selling and spreading of fertilizer, reports Mr. Bean.

There has been an increase in pasture fertilization within the last two years in this region. Many dairy farmers use 0-20-20 for pastures. For corn 10-10-10 is widely used, while small grains in the area call for 5-10-10 and 10-10-10.

**Corn Borer Increase
Noted in Maryland**

COLLEGE PARK, MD.—An average of 140 corn borers per 100 stalks has been reported by University of Maryland entomologists following a statewide survey of the pest. This compares with an average of 41 per 100 stalks a year ago.

In the nine Eastern Shore counties the 1955 survey showed an average of 246 borers per 100 stalks, more than four times the 1954 count. A sharp increase also was found in southern Maryland.



By RAYMOND ROSSON

County Agent, Washington County, Tenn.

BLESSED are they that live on poor land, for theirs is the kingdom of erosion.

BLESSED are they that mourn over low yields, for they shall be comforted to know it wasn't the land's fault; but theirs.

BLESSED are they that are meek, but will work, plan and seek information, for they shall inherit the better land.

BLESSED are they which do hunger and thirst after knowledge and understanding, for theirs will be a full life.

BLESSED are the charitable for they will feed their livestock balanced rations, and will be lenient with their fields and rotate.

BLESSED are they who plant pure seed, use a balanced fertilizer and insecticides, for they shall see the Maker in the harvest.

BLESSED are they that make peace with the soil, for they shall be called, "Children of God's land."

BLESSED are they which are persecuted for being progressive, for theirs is the reward of good homes and happy youngsters.

BLESSED are ye when non-progressives shall criticize and say, "Let good enough alone."

REJOICE, and be exceeding glad, for great is your reward in your community . . . for so criticized were they, the progressives, which were before you.

AGRICULTURE prepare a table for the cities that are set on hills . . . and may their light so shine by recognizing the basic values of good land and the well informed stewards who inhabit that land.

TRAFFIC STOPPERS

Dealer Sales Promotion, Service Ideas

 By AL. P. NELSON
Croplife Special Writer

What can the farm chemicals dealer do in the way of sales promotion and service to help build more business and good will? This is a subject which is very interesting to many dealers whom I have visited in a number of states. Based upon my talks with them, here are a few suggestions which may fit your business.

1. Weather Report. If there ever was a natural sales promotion for the farm chemicals dealer who handles fertilizer, the sponsoring of a weather report in a newspaper or via radio is it. In the first place, the dealer is assured of a fine audience of rural people, because farmers listen daily to weather reports.

If the dealer himself sponsors such a broadcast over the radio, for ex-

ample, and does the announcing, he can make a few observations as to the effect of the day's weather on fertilizer hauling, spreading, etc. He can note the growth of crops. He can get in sales plugs without making the broadcast sound too commercial.

It might even be a good idea to have a weather board in your store and note upon it the effect of last week's weather, for example, on the crops in the immediate trade area.

If you give away an almanac, this is a good thing to tie in with your weather report sponsorship, for such almanacs play up the weather, crop schedules, and the like.

2. Weekly Insect Report. In every community certain insects are more bothersome than others. The livewire

farm chemicals dealer can publish a weekly insect report in his newspaper advertisement. He can tell which insects are now the most bothersome and damaging, and which will be damaging within a week or so. If he has illustrations of such insects to publish, so much the better.

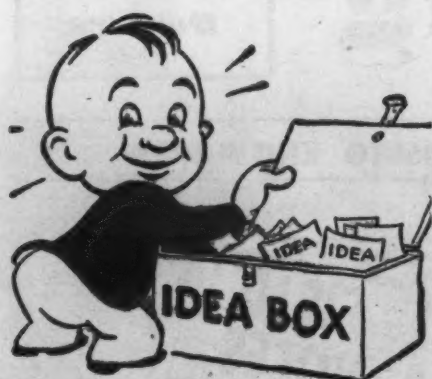
Then, in bold-type—after you have described the insects, and how they wreak their damage—you can publish the types of sprays to use to eradicate the insects. Put the names of these products in fairly large type and ask farmers and gardeners to come in and get them at your store.

By publishing such a weekly report, you will focus the interest of your customers on special insect dangers. Do not make the mistake of trying to warn them—in one

(Continued on page 14)

Better Selling

Richer Sales Fields for Dealers



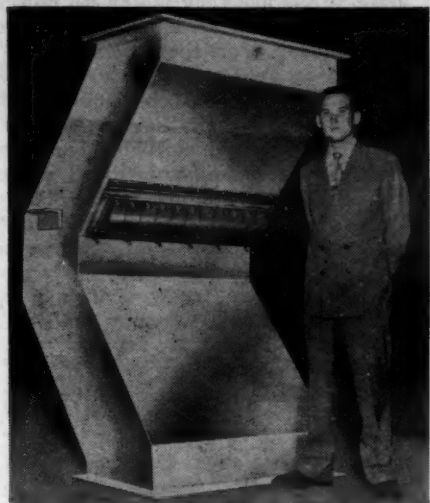
What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 5319—Magnetic Chute

A new zig-zag magnetic chute for processors of non-metallic minerals is in production by Prater Pulverizer Co. Designed for gravity flow of ground or finely crushed products, these chutes are said to be capable of removing not only the occasional nut or bolt, but the fine slivers of metal which normally wear off processing machinery. Each chute as-



sembly contains two heavy duty permanent magnetic separators and the chutes are so constructed that the material first passes across one magnet, then completely reverses its direction of travel to pass across the second magnet. This construction insures double protection against tramp metal and is adaptable to either inclined or vertical material flows. They are available in sizes ranging from 8 in. to 48 in. wide. Standard equipment is of carbon steel, however stainless steel is also available. For further information check No. 5319 on the coupon and drop it in the mail.

No. 6347—Fire Alarm System

The Seedburo Equipment Co. announces a new fire alarm system which is recognized by the Mill Mutual Fire Prevention Bureau. The system, called the Secoalarm, is said to be easy to install, and utilizes a sensitive thermostat. The company announcement states: "The Secoalarm, because of its simplicity, can be installed by any competent electrician or by any good mechanic if a competent electrician is not available, unless, local ordinances or codes

require otherwise." The alarm is said to have an audibility range of approximately one quarter mile. To secure additional information check No. 6347 on the coupon and mail it to Croplife.

No. 6348—Garden Book

The California Spray-Chemical Corp. has released its 1956 edition of the Ortho garden book. The book gives recommended treatments of insecticides and fungicides for insect pests and diseases. Liberally illustrated, the book has close-ups of plant pests and troubles. Information is presented in non-technical terms for the gardener, the company announcement states. Included in the book are plans for a practical garden structure. The book may be secured by checking No. 6348 on the coupon and mailing it to Croplife.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 6341—Storage Tank Liners

A brochure has been prepared by the Flexi-Liner Co. on its storage tank liners, called by the trade name, Flexi-Liners. According to the brochure, the liners are liquid-tight, flexible cylindrical sacks made of special plastic sheeting. The large bags are for installation inside storage tanks to prevent corrosion of the tanks and to protect contents from iron contamination by the tank. Secure the brochure by checking No. 6341 on the coupon and mailing it to this newspaper.

No. 6334—Loader

A new and larger two-wheel-drive "Payload" tractor-shovel, model "HAH," has been announced by the Frank C. Hough Co. The model, which has a struck capacity of $\frac{3}{4}$ cu. yd. and a heaped capacity of 1 cu. yd., incorporates all of the features of the smaller "HA" model which was introduced last February. One feature is the bucket breakout action which permits 40° of tip-back at ground level. The new model "HAH" has a breakout force of 4,500 lb., a lifting capacity of 4,000 lb. and a carrying capacity of 3,000 lb. at 4 m.p.h.

Especially designed for stockpile work, this new unit has a short turn-

ing radius and rear-wheel power steering. The high lift of 7 ft. 9 in. enables it to load trucks or elevator hoppers. Secure more complete details by checking No. 6334 on the coupon and mailing it to this publication.

No. 6342—Plastic Drum Faucet

A polyethylene plastic drum faucet has been introduced by the Mull Meter Corp. Designed to fit all $\frac{1}{4}$ standard drum openings, this full-sized faucet is claimed to be durable and light weight. Polyethylene construction prevents reaction with strong acids, alkalis, oils, etc. Secure more complete information by checking No. 6342 on the coupon and mailing it.

No. 6344—Lawn Machine

Franchises are now available for a new machine, called the trade name, Lawnscape, announces the manufacturer, Lawnscape Corporation of America. It is claimed to perform the numerous lawn care functions previously done by hand by several machines. Franchise rights



include exclusive right to work in territory of approximately 10,000 population. Rights also include basic materials with which to service average size lawns, the company announcement states. The machine's basic unit is a 24-in. dual rotary type mower. A rack attachment holds four fibre drums for seed, fertilizers, weed killers, insecticides and grub killers. The entire system can be controlled from the driver's seat. Also available is an aerator set and water filled roller. Secure more complete details by checking No. 6344 on the coupon and mailing it to Croplife.

No. 6346—Potash Handling

Field Report No. 227 from Sauerman Bros., Inc., describes the handling of potash in indoor storage. Carlsbad, N.M., by scraper storage machine. The report is illustrated with layout drawings and pictures which show the plants of two major potash producers. To secure the report check No. 6346 on the coupon and mail to Croplife.

No. 6339—Insecticide

A detailed description of methyl parathion, an organic phosphate insecticide recommended for the control of aphids and spider mites on cotton, is contained in a new technical bulletin published by Monsanto Chemical Company's Organic Chemicals Division. Company officials stated that "methyl parathion, like parathion (Monsanto's Niran), is non-translocating when applied to foliage. It has proved more effective than parathion against cotton boll weevil and is included in the official recommendation for cotton insect control. Experiments now in progress indicate good potentials for the compound against aphids on grapes, aphids and weevils on alfalfa, and several other pests including beetles, caterpillars and mosquito larvae. Combination of methyl parathion and parathion

Send me information on the items marked:

- | | |
|---|---|
| <input type="checkbox"/> No. 5319—Magnetic Control | <input type="checkbox"/> No. 6341—Tank Liners |
| <input type="checkbox"/> No. 5309—Accounts Receivable | <input type="checkbox"/> No. 6342—Drum Faucet |
| <input type="checkbox"/> No. 5321—Catalog | <input type="checkbox"/> No. 6344—Lawn Machine |
| <input type="checkbox"/> No. 6334—Loader | <input type="checkbox"/> No. 6345—Transport Unit |
| <input type="checkbox"/> No. 6338—Production Literature | <input type="checkbox"/> No. 6346—Potash Handling |
| <input type="checkbox"/> No. 6339—Insecticide | <input type="checkbox"/> No. 6347—Alarm System |
| <input type="checkbox"/> No. 6340—Applicator | <input type="checkbox"/> No. 6348—Garden Book |

NAME

COMPANY

ADDRESS

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS
PERMIT No. 2
(Sec. 34.9,
P. L. & R.)
MINNEAPOLIS,
MINN.

BUSINESS REPLY ENVELOPE

No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY—

Croplife

P. O. Box 67,

Reader Service Dept.

Minneapolis 1, Minn.

registered for use in California on a variety of horticultural crops. The two compounds are very similar although a higher volatility is indicated through a higher volatility is indicated through methyl parathion, imparting better fumigant properties to a spray." Secure the bulletin, 0-55, by checking No. 6339 on the coupon and mailing it to Croplife.

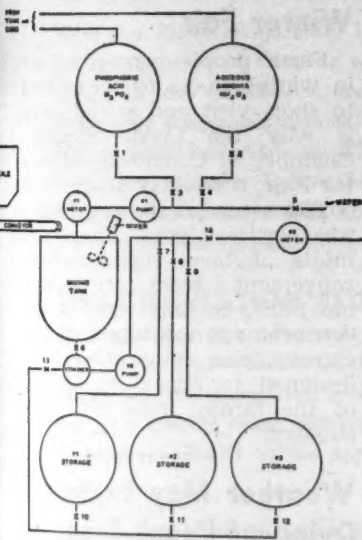
No. 6340—Applicator

Schelm Brothers, Inc., is now manufacturing and distributing a nitrogen solution applicator designed by A. Senesac. Called by the trade name, Senesac-Schelm "do it your-own-way" applicator, the unit comes equipped with a 100-in. tool bar and four knives. Tool bar extensions and extra knives are available to give 60-in. row coverage with any desired knife spacing. A spray boom is available to convert the unit into a trailer spray for applying non-pressure solutions or insect and weed chemicals. Controlled air pressure is supplied by a mounted compressor. Check No. 6340 on the coupon, clip and mail it to secure more information.

No. 6338—Liquid Fertilizer Production

Literature containing operating instructions for liquid fertilizer production has been prepared by the Standard Steel Manufacturing Co., Inc. The types of raw materials are listed,

PLANT - SCHEMATIC



together with operating details. A large schematic drawing of a plant, similar to the one pictured here, is included with the instructions. The literature notes that "these instructions will help you operate your plant safely and efficiently. They are designed to help you make the most of fertilizer for every dollar you pay for raw materials..." Secure the literature by checking No. 6338 on the coupon and mailing it to Croplife.

No. 5321—Catalog

The Chantland Manufacturing Co. has available a new catalog describing its conveyors and allied products. The catalog includes a complete price list, fact sheets as well as numerous illustrations and product descriptions. The company's conveyors, called the Monsal line, are available for handling a wide variety of materials in sacks, bins, boxes and in bulk. Conventional conveyors, as well as wheel and roller units in straight and curved models are described in the catalog. Secure the catalog without charge by checking No. 5321 on the coupon and mailing it to this publication.

No. 6345—Transport Unit

Schelm Brothers, Inc., announces the production of its new nitrogen transport unit which consists

of a 500-gal. aluminum pressure tank and skid mounted on a two-wheel trailer. The trailer is constructed to handle a three-ton load and may be equipped with electric brakes if desired. A spray boom is available for non-pressure type solutions. When used as a nurse tank, hoses and fittings are available for either dip tube or bottom withdrawal of solutions. A small compressor and gasoline engine mounted on the trailer supply the air pressure. Complete information and prices are available by checking No. 6345 on the coupon and mailing it to this newspaper.

No. 5309—Accounts Receivable

"Simplified accounts receivable for retailers" (SARR) is described in an 8-page folder released by Remington Rand. Based on the company's "simplified unit invoice accounting plan" (SUIAP), "simplified accounts receivable for retailers" uses no accounting machines and requires no highly trained clerks. It is claimed to provide a complete, accurate and fast method of handling accounts receivable. The method uses Remington Rand's Kolect-A-Matic trays, housed in Safe-Ledger equipment for 24-hour protection from fire, and provides an accounts receivable ledger composed of open, unpaid items only, a monthly statement for each customer, and a history of each account. Secure literature on this method by checking No. 5309 on the coupon and mailing it.

Air Spraying Gives Good Control of Orchard Field Mice

GENEVA, N.Y.—Field tests by the New York State Agricultural Experiment Station have shown the effectiveness of field mouse control in orchards by airplane spraying.

The bait used is 2% zinc phosphide and cracked corn. A 200-acre orchard can be baited in less than one working day, with the cost ranging from \$1.50 to \$2 an acre, according to station scientists.

In 1953 a series of mouse-population censuses in a large commercial orchard showed the presence of mice in substantial numbers. The orchard was baited by airplane at a rate of 6 lb. per acre. Eight days later a series of population checks indicated that mouse numbers had been reduced about 85%.

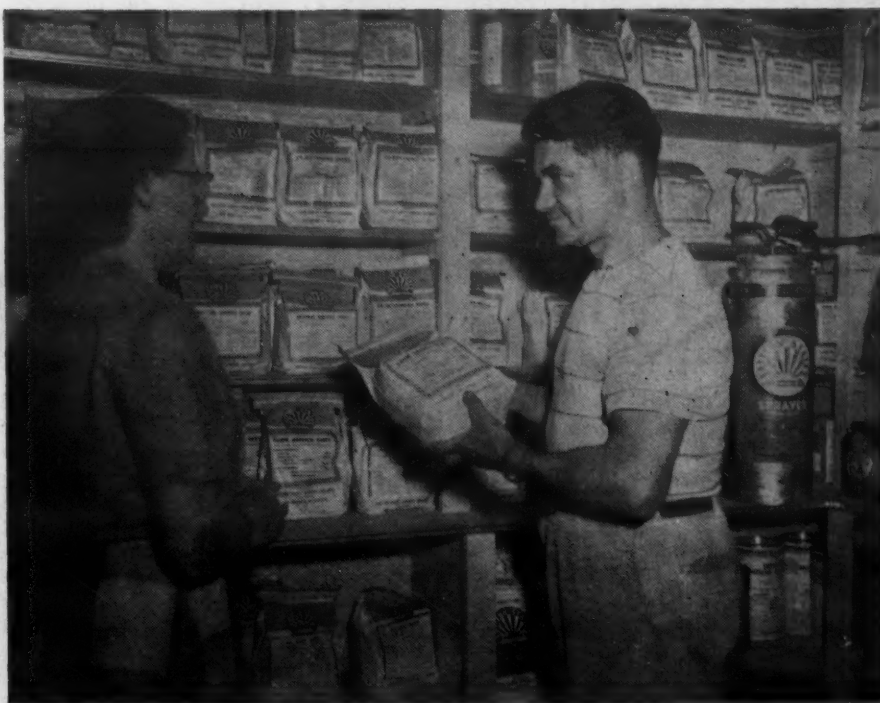
In 1954, two large commercial orchards were checked for the results of airplane baiting. In one, prebaiting checks showed the presence of a very high mouse population. A week later, postbaiting checks showed a reduction of 90%.

A second orchard had a moderate mouse population before baiting by airplane. Postbaiting checks indicated a reduction of 70% in mouse numbers.

Rates Figured for Fertilizer, Lime On Small Areas

Here's how to figure the correct amounts of lime and fertilizer for small areas, when recommendations are given "per acre." The figures are computed by Virginia Polytechnic Institute specialists.

When the recommendation is for 200 lb. of lime or fertilizer per acre, the rate per 1,000 sq. ft. is 4.6 lb. Likewise: 300 lb. per acre, 6.9 lb. per 1,000 sq. ft.; 500 lb. per acre, 11.5 lb. per 1,000 sq. ft.; 700 lb. per acre, 16.1 lb. per 1,000 sq. ft.; 800 lb. per acre, 18.4 lb. per 1,000 sq. ft.; 900 lb. per acre, 20.7 lb. per 1,000 sq. ft.; and 1,000 lb. per acre, 23 lb. per 1,000 sq. ft.



AT FARMERS EXCHANGE — Alfred J. Cipolla, manager of Eastern States Farmers Exchange, Manchester, N.H., is shown above explaining a new dusting powder to a member. Right, a neat idea for a counter display. This 3 by 3 ft. glass enclosed display case is in the main serving counter, and it has made many extra sales, Mr. Cipolla reports.

Fall and Winter Promotion Pays Off In Early Sales

Constant promotion of the theme "it pays to place fertilizer orders early" helped the Eastern States Farmers Exchange, Manchester, N.H., get a lot of advance bookings last winter and early spring, says Alfred J. Cipolla, manager, and he plans to lay even more stress on this idea during the coming season.

In order to call the attention of members to the importance of ordering fertilizer at an early date, Mr. Cipolla uses displays of fertilizer in the showroom in the winter months.

He also sends return postcard messages to member customers in the area in early spring. One such mailing listed the various fertilizers in stock, dry and granular, and with current prices. It was easy for members to fill out the order card, sign it and drop it in the mail, too.

Eastern States Farmers Exchange, the parent organization with headquarters in Springfield, Mass., also issues the "Cooperator," a magazine for farmer members, and this publication is constantly urging members to place their fertilizer orders early to get the quality and types of fertilizer they need for their crops. This constant publicity, too, has its effect on members.

One excellent bit of fertilizer publicity appearing in this member magazine said, "Crops Get Hungry, Too." You don't have to call a farmer twice to dinner. And he knows his livestock and poultry must eat for full production. But often his crops go hungry. Here are some fertilizer practices to discuss with him for better crop yields:

"1. Fertilize early harvest forage crops, both pasture and hayland. Put back the nutrients removed by grazing, ensiling and haying. Use 0-15-30



W/B, 8-16-16 or 10-10-10, depending on legume grass mixture.

"2. Sidedress corn with nitrogen. Do the job when the crop is 6 to 12 in. tall.

"3. Fertilize annual forage crops. For best results these crops must grow fast. Plow down manure if it is available or use 10-10-10 for both plowdown and seeding applications. Dairymen should use annual forage crops and assure plentiful midsummer feed.

"4. Watch those vegetable crops. Extra nitrogen applied as side dressing, foliar spray or in irrigation will boost crop yields and quality.

"Keep 'em well fed and growing."

Well before the season, too, Mr. Cipolla and staff keep insecticides, weed sprays and sprayers on display in a fine, neat showroom. This makes members aware of the fact that spraying season is coming up, and this, of course, results in some early sales.

"Good display means a lot," declares Mr. Cipolla, "for it keeps products before our members, reminds them of their need for the merchandise."

Mr. Cipolla has a 3 by 3 ft. glass enclosed display space in the main serving counter. It is lighted with fluorescents, and periodically he uses this space for showing of weed killers, insecticides, livestock and poultry remedies and other products.

Currently Mr. Cipolla and staff are experimenting with two fork lift trucks for the handling of fertilizer, seed and feed. Wooden pallets are used for some feed and fertilizer pallets, while a hard cardboard is used for other loads which can be handled by the fork lifts.

"Our members are very interested in fertilizer and farm chemicals," says Mr. Cipolla, "and we give them all the information we can. They know from experience and recommendations that better crops can be had by using the right fertilizers and chemicals and they want to know more about these products."

Better Selling

Richer Sales Fields for Dealers



It was near closing time one cold Wednesday afternoon, when the office door opened and in walked Ted Sanders, publisher of the Blairsville Bugle. Sighting portly, businesslike Oscar at his desk, Ted Sanders smiled engagingly and said, "Hello, Oscar. Is Pat around?"

"No, he has been out collecting all day," snapped Oscar. "If all goes well and he gets money, he comes back early. But today he's staying out late. That means he isn't collecting much. We'll have to cut expenses, that's all."

Ted Sanders seemed to be debating something. Then Oscar sighted a folded piece of newsprint under Ted's arm. "Is that one of your ads?" he asked suspiciously.

"W—well, yes," admitted Ted Sanders. He knew full well that Oscar had little use for advertising. "I wanted Pat to look it over. We're going to press first thing in the morning. We've got an unusually large gift issue, so we want to get started on it."

"Let me see the ad," Oscar said coldly, holding out his hand.

Ted Sanders knew he was caught. "You're a partner, and I suppose you have a right to see it," he said. "But Pat usually handles the advertising."

"And I handle the payments," Oscar said. "Don't forget that."

Ted Sanders handed over the folded paper. Oscar began unfolding it, his frown deepening. "A full page! Ach Himmel, what does he think this is—a government buying program?"

"Pat has a real good idea in that ad," Ted Sanders said enthusiastically. "I think it will create a lot of interest, farmers will talk about it, and you should sell more fertilizer."

Oscar didn't answer. Instead he unfolded the ad meticulously on the desk in front of him. "A full page!" he roared. "For this?"

What he saw was a large ad with two illustrations at the top, one of Pat McGillicuddy in a Chevie car, back in 1925, and opposite it a picture of Pat in his 1955 Chevie. It was quite a contrast, and the headline said, "Yes . . . Times Change . . . for the Better Mostly."

Oscar snorted his disgust. "We sell fertilizer and he advertises Chevies. They should pay half the ad—or maybe more."

Ted Sanders sighed patiently. "That's just the introduction to the main ad theme," he pointed out. "Read further."

Oscar did. He saw two more pictures, one of a farmer spreading manure in 1925 and another of the same farmer spreading fertilizer in 1955.

"Manure was widely used in 1925 as fertilizer," said the copy. "It's good, but there isn't enough of it. Now, farmers have realized that the correct amounts of properly balanced fertilizer round out their fertilization program and produce larger crops at lower per unit cost. Times have changed in agriculture, too, for the better. Order your fertilizer now."

"All that space," Oscar ejaculated, "to say that! Farmers already know that. Why use a full page to tell

them? Pat could cut down that ad to a quarter page and lose nothing!"

Ted Sanders apparently had trouble keeping a hot retort from coming through his tight lips. "Oscar, you're wrong," he pointed out. "You've got to repeat and repeat key selling methods to potential customers before the message sinks in. Big companies which advertise regularly have proved that. And if you crowd ads too much, the readers won't look at them. You've got to have plenty of white space."

"Yah, at \$1.10 per inch," Oscar said. "That's good business for you."

Once more Ted Sanders sighed. "Oscar, I hate to tell you but your total fertilizer volume this year is much more than last year. Why? Because one of your policies is a good advertising program. Those case histories of customers and how much increase fertilizer gave them on crops has helped a lot."

"They could hear the same news from their neighbors, or from us," Oscar pointed out relentlessly. "Why don't they ask us? We are willing to talk."

"But you can only talk to a few people every day, whereas hundreds of farmers can read your ad in our weekly paper in a few minutes, all over the county."

"You fellows should talk," Oscar continued cruelly. "You have a newspaper plant to keep up and pay taxes on and a newspaper to pay for each week. You've got to sell enough ads every week to pay for the whole deal. You are talking for yourself, not for us."

Ted Sanders counted to 20, then said slowly. "I'm sorry you feel that way, Oscar. I can't influence what you think of advertising and newspapers. But try to remember this fact

—we could not stay in business year after year and grow, if advertising didn't bring more business to our steady advertisers. Those advertisers know that, and so they keep advertising. Advertising is just as necessary an expense, as—as those sharp pencils on your desk."

"You think so eh?" snapped Oscar. He grabbed a sharp pencil and held it high and regarded it fondly. "This is the best tool in this business. It helps me figure. It cuts unnecessary costs and sees to it that we make a profit. You think so much of your advertising—well—I think just as much of this pencil. I won't okay this ad. I don't believe in taking a full page for such a message. It's a waste of money."

Ted Sanders took one more chance. "Why, you didn't read the whole ad. Look, at the bottom of the page in black type it says that you fellows will continue spreading right into winter until the snow gets one foot or more deep. Pat says that fertilizer firms in southern Minnesota and Iowa have proved it can be done with no loss in nutrients. As the snow melts the fertilizer sinks right into the ground. Saves spring work and muddy trouble."

"That's worse yet," Oscar said acidly. "The trucks will get stuck in the snow, and then we'll have to hire a snowplow to get them out."

Ted Sanders gave up and walked to the door. "If Pat comes in show him the ad and have him call me," he said. Outside, he spat into the gutter. "If all my customers were like that guy, I'd quit this business and go into something else. Boy, does Oscar watch that treasury. I wonder if he even takes a discount on his income tax."



PLAN WEED MEETING — John D. Van Geluwe, left, G.L.F. Soil Building Service, Ithaca, N.Y., and Robert H. Beatty, American Chemical Paint Co., Ambler, Pa., are shown during a planning session for the charter meeting of the Weed Society of America. Mr. Beatty is president of the Weed Society of America, which will hold its first meeting at the Hotel New York, New York, Jan. 4-5. Mr. Van Geluwe is president of the Northeast Weed Control Conference, which will be host to the gathering. The Northeast group will hold its annual meeting Jan. 6. For an advance story on the meetings see page 2 of the Oct. 31 Croplife.

CROPLIFE, November 28, 1955

OVER THE COUNTER

(Continued from page 9)

time and place where they could actually see the site of the test and when they were in a receptive state of mind for digesting the results.

Free Service

Businessmen of Ames, Iowa, in the past have provided a free gas service for farmers of four counties and the farmers have appreciated it.

The businessmen have also conducted a four-county study of better rural fire protection methods. In many rural areas fire protection is inadequate, and many farmers need help in this regard so that home farm buildings, livestock, poultry and farm machinery is not lost unnecessarily.

Farm Youth Day

When Joliet, Ill., held a farm youth day, more than 1,800 farm youngsters showed up for the event. They were taken on a tour of important industrial and recreational points, given several free shows, fed well and provided excellent dancing facilities. The youngsters went back home with much appreciation of Joliet citizens and their friendliness. They talked days with parents and neighbors about their experiences. This sort of promotion is something which will help keep more farm youths in rural areas to work, marry and live.

Winter Fair

Farm people generally have time in winter to go to towns and cities to shop, visit and attend fairs. This is why the Cedar Rapids, Iowa, Chamber of Commerce holds a Winter Fair, a two-day affair. More than 60,000 attended the one held in the weather last year. There were exhibits of farm supplies, flower arrangement demonstrations, live Brahma bulls, cooking schools and band concerts, art exhibits and farm machinery, plus many other attractions designed to appeal to all members of the family from both town and country.

Weather May Explain Dying of Peach Trees

NEW BRUNSWICK, N.J.—Hurricanes, drought and heavy rains may have hit New Jersey's young peach trees harder than first signs indicated.

Ernest G. Christ, extension fruit specialist at Rutgers University, is not ready to say positively that bad weather has made trees die, but says that way. This is particularly so since most damage has been found in areas hard hit by "Hazel" in 1954.

During early September, reports Mr. Christ, owners of young orchards showed him dying trees, with symptoms like those that are seen when the trunk is girdled. In some orchards he could say for sure that too much soil moisture caused the condition.

In October, the specialist saw more of the same injury in young orchards particularly in the Glassboro-Rivewood area. Most of the dead trees were two or three years old. Younger and older ones seem to have escaped.

Fertilizer Destroyed In Warehouse Fire

LAKE CITY, S.C.—An estimated 200 to 300 tons of fertilizer was destroyed in a fire that razed the Bowen-Epps tobacco warehouse here. The 180,000-square-foot building, serving as a storage point for large quantities of tobacco in season was owned by G. Bowen, A. M. Bowen, D. G. Bowen, E. C. Bowen and N. R. Epps.

if your product is marketed
through distributors and dealers...

Croplife is for YOU!

AN IMPORTANT EXCLUSIVE is available to advertisers whose agricultural chemical products are marketed through distributors and dealers. It is Croplife's unique *regional crop-area circulation plan*, carefully developed to fill an urgent need in the industry's marketing and advertising facilities—the need of advertisers to reach the dealers and distributors and farm advisers with an up-to-date story of their products and their consumer promotion plans.

THIS IS THE PLAN: In addition to the weekly circulation to manufacturers and formulators, Croplife is distributed on a regional crop-area basis to the dealer-distributor-farm adviser segment of the industry. The merchandising section in each issue of Croplife is specifically edited for dealers in one specific region. This carefully planned editorial formula insures intense reader interest.

More than 11,000 DEALERS, 1,700 custom operators and 1,000 farm advisers receive the issue of Croplife specifically edited for their regional crop-area once each four weeks. The mailing schedule for this group covers consecutively four geographic regions of the United States (see map) with one of four regional dealer issues: The Northeast Dealer Issue, the South Dealer Issue, the Midwest Dealer Issue or the West Dealer Issue. Each week Croplife goes to more than 3,500 dealers, distributors and farm advisers in one of these four regional crop-areas.

THIS CIRCULATION EXCLUSIVE is available only through Croplife. The regional crop-area circulation to dealers has been carefully developed to fit the particular needs of the agricultural chemical industry. Many individual products have been developed and approved and are being sold for use on a specific crop; therefore, marketing and promotion plans must be directed specifically to the appropriate crop-area. Croplife's dealer circula-



In addition to its national coverage, Croplife offers a selective regional circulation plan in these crop-areas

tion developed along crop-area lines offers advertisers the *most flexible medium possible*, designed to give "direct-hit" coverage for specific messages without the higher cost of a larger-than-necessary circulation on an inflexible nationwide basis. Advertisers interested in reaching dealers in more than one region can do so easily and economically with a selective advertising schedule.

HOW TO USE THE PLAN: Select the regional crop-areas—Northeast, South, Midwest or West—in which you need to reach dealers, distributors and farm advisers with the up-to-date story of your products and your consumer promotion plans. Plan your message to inform and to educate this group. Then, select the appropriate issues of Croplife to carry your advertisements. Croplife's printed circulation statement outlines the four regional crop-areas in detail and gives the issue-by-issue mailing schedule. Ask us for a copy.

AND SOON—4000 additional selected dealers will be added!

BEGINNING IN JANUARY this important circulation exclusive becomes even more valuable to advertisers who are reaching dealers through the pages of Croplife. An additional 4,000 selected dealers handling agricultural chemicals will be receiving the issues of Croplife edited specifically for their crop-areas. One thousand dealers in each regional area have been screened and verified and will be added to Croplife's controlled circulation

plan, bringing the total number of dealers, distributors and farm advisers receiving Croplife to more than 18,000. Each week Croplife will go to more than 4,500 of these interested readers in one of the four regional crop-areas.

MAKE YOUR PLANS NOW to capitalize on this unique advertising opportunity, exclusively through the pages of Croplife.

WRITE-WIRE-PHONE for the full story of your advertising opportunity in

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sales
...for richer fields

published by The Miller Publishing Co.

NEW YORK

114 East 40th Street
Murray Hill 3-3768

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2272 Board of Trade Bldg.
Harrison 7-6782

KANSAS CITY

614 Board of Trade Bldg.
Victor 1350

MINNEAPOLIS

2501 Wayzata Blvd.
MAin 0575



FARM SERVICE DATA

Extension Station Reports

John F. Shoulders, Virginia Polytechnic Institute pasture specialist, advises farmers to topdress pastures with fertilizer while the grasses and legumes are dormant, immediately after cutting for hay or silage or after they have been grazed.

He says topdressing at those times prevents burning or excessive damage to the vegetative portions of the plant. Fall, winter, or before growth begins in the spring, is the best time to topdress from the standpoint of least injury to pasture plants.

Topdressing is especially important this year in most areas of Virginia, Mr. Shoulders says. Favorable moisture conditions in most parts of the state have resulted in excellent pasture growth. This has used up or greatly reduced any reserve plant food which may have accumulated as a result of the last three dry years.

Generally, good tall grass-ladino clover or tall grass-alfalfa-ladino pastures should be topdressed each year with 400 to 800 lb. of 0-14-14, 2-12-12, 5-10-10 or the equivalent, fertilizer per acre, depending on the fertility level of the soil, Mr. Shoulders says. Native pastures, such as bluegrass-white clover, can be maintained satisfactorily in most instances by topdressing every 3 or 4 years with 900 to 1,200 lb. of 0-14-14, or 0-16-8, or the equivalent. Where the pasture is pale green and unthrifty, a complete fertilizer such as 5-10-10 should be used.

★

Grassland may be as productive in terms of feed as the same land in grain. In terms of dry matter per acre per season, alfalfa-late orchardgrass produced 4.74 tons in tests conducted last year by J. B. Washko, Pennsylvania Agricultural Experiment Station agronomist. Birdsfoot trefoil-timothy-Kentucky bluegrass produced 3.23 tons; birdsfoot trefoil-late orchardgrass, 2.61 tons; birdsfoot trefoil-tall oatgrass, 2.51; and birdsfoot trefoil-reed canarygrass, 2.42 tons.

Calculated in terms of feed production, the alfalfa-late orchardgrass produced the equivalent of 137 bu. of shelled corn per acre. Similarly, the birdsfoot trefoil-timothy-Kentucky bluegrass produced the equivalent of 98.5 bu. of corn. The legume-grass seedings were grazed for their second year in 1954. Half-acre paddocks replicated three times constituted the test areas.

★

A current research program of the U.S. Department of Agriculture, aimed toward more efficient use of forage crops, has come up with some important facts relating to pasture stand establishment and forage utilization.

Present-day emphasis on grassland farming has helped point up a too-casual attitude toward forage crops among some American farmers and livestock producers. Many who would be acutely concerned because of a poor stand of wheat or corn can apparently look on a similarly poor forage stand with complacency.

Research now in its fourth year at USDA's Agricultural Research Center, Beltsville, Md., is showing that substitution of a few simple practices for seeding methods now commonly used can boost forage yields

several times over in the first harvest.

In one experiment, cooperating agronomists and engineers compared broadcast seeding and fertilization with drill seeding and band fertilization. A tall fescue and Ladino-clover mixture, seeded broadcast at the rate of 4 lb. of tall fescue and 1 lb. of Ladino per acre, and fertilized at the rate of 750 lb. of 3-12-6 fertilizer per acre, yielded an average 817 lb. of weed-free dry matter per acre in the initial harvest.

When the same mixture was drilled and fertilizer was banded one inch below the seed, per-acre yield of dry matter averaged 2,865 lb. Similar widely divergent yields resulted when these two methods were compared using various rates of seeding and fertilization.

The researchers are now broadening their pasture-establishment studies to gain similar information about sericea lespedeza, orchard grass and birdsfoot trefoil. They are initiating studies to learn the effect of placement of individual fertilizer elements—nitrogen, phosphorus, and potash—on stand establishment.

They also are attempting to determine if these better stands can be more efficiently used by livestock. Very preliminary results from dairy-cattle feeding trials indicate that milk cows will use more than enough pasture of high quality than is required for maximum milk production.

★

Wild tobacco from South America crossed with high producing varieties at the Field Research Laboratory at Landisville, Pa., over a period of years has produced strains of cigar-leaf tobacco that are resistant to two serious diseases, wildfire and mosaic, according to the Pennsylvania Agricultural Experiment Station.

Strains of the resistant varieties have been bred since 1948 and have been tested at the Lancaster County laboratory. While the experiments have concentrated on developing disease resistance, the new cigar-leaf strains have been selected for high yielding ability and good growth characteristics. To further test the new materials, the 1953 crops were evaluated by tobacco buyers after stripping was completed in the spring of 1954. A similar check was made on the 1954 crop, and both these crops are now being processed.

★

Applications of toxaphene and chlordane dusts gave effective control of cutworms on tobacco plants when the insecticides were allowed to remain on the soil surface undisturbed until planting, the Connecticut Agricultural Experiment Station reports. (Circular 191).

These dusts were broadcast at least five days before planting on the surface of the soil at rates equivalent to 3 lb. actual insecticide per acre, the station says.

Toxaphene bait at 1½ lb. actual toxaphene per acre gave effective protection when applied after planting. Insecticides harrowed into the soil, insecticide-fertilizer mixtures, and emulsions used in the setter water gave results not considered satisfactory. None of these materials were shown to give residual protection one year after application.

Endrin and heptachlor sprays ap-

plied after plants were set in the field have shown some promise for the control of cutworms. Toxaphene dust at rates equivalent to 3 lb. actual insecticide per acre applied to plants set in the field gave protection that was considered satisfactory. Late season cutworm damage has been controlled by growers making applications to the plant and the soil of DDT dusts at rates equivalent to 1 to 2 lb. actual DDT per acre.

Aphids on tobacco plants were controlled by single applications of metacide and parathion, at rates recommended by their manufacturer. Malathion is also effective in controlling aphids, and it, being less toxic than either metacide or parathion, can be used safely in the plant bed when applied seven days before

pulling to prevent infestation by aphids.

Wireworms were controlled in tobacco plots by broadcast treatment with chlordane, harrowed in immediately. Aldrin and heptachlor have been used successfully in the same way in other states.

Kansas Firm Expands Fertilizer Facilities

STAFFORD, KANSAS—The B. I. Whitlock Butane Co., liquid fertilizer dealer here, has expanded its fertilizer and compressed fuel supplies. Tanks now have a total capacity exceeding 30,000 gallons. New office quarters for the firm are now being erected.

SALES PROMOTION IDEAS

(Continued from page 9)

large ad—of all the insects which will pester gardens and crops during the entire growing season. The customer becomes confused by such a large ad with so many suggestions. Pinpoint the program for him on a weekly basis.

And be sure to date every ad you publish, so that the farmer can clip them and save them. Try to keep each weekly insect report at the same size, so that if the farmer files them in a looseleaf book, he will be able to keep them in order quite easily and perhaps staple them.

Also, some time during the year, publish a sprayer ad or two and tell the farmer and the gardener just what the hand sprayers will do in the way of coverage for gardens of certain dimensions. Tell explicitly what spray equipment is needed for the small orchard, etc. The customer will appreciate this kind of factual information which will help him with the problem.

3. **Fungicides.** Tell the farmer what they are and their uses. Make sure that he understands just how he can use and apply them. Investigate through your county agent if there is any need for soil fumigation, then perhaps publish a well illustrated ad showing a sample soil fumigation bed.

4. **Soil report.** This could be a separate report in your advertising columns from time to time. It would be worth while to publish reports on what types of soils there are in the trade area which your store covers. Detail these soils and in what elements they are usually deficient, based on tests which have been made. How about the acidity or alkalinity of the various soils in your area before treatment? Tell the farmers about that. There is much that can be done in a regular soil report.

In such a report, too, belongs such information as where farmers can have soil samples tested, what times of the year are best to have such tests made. Here, too, you can discuss soil conservation in your trade area and perhaps in the entire county. Through this part of your publicity program you can keep the farmer thinking about his soil, his need for retaining its rich productive qualities and also the need for conserving it. This will help you to sell fertilizer.

5. **What crops take from the soil in the way of nutritive elements.** Many farmers would be astounded if they realized how much in the way of actual poundage certain crops take from the soil in nitrogen, phosphorus and potash. Work with your county agent, your state college agricultural station, your fertilizer manufacturer, to establish these facts in your area and then advertise them.

If the farmer can see how much certain crops take from his land in terms of pounds, then he can easily

see how he must buy fertilizer to replace it. This is pinpoint selling which can be effective in many areas.

6. **State agricultural bulletins.** There are many bulletins published by experimental agricultural stations in every state which refer to crops, fertilizers, diseases, insects, etc. Every farm chemicals dealer can get some of these valuable bulletins free in certain quantities. Then if you want extra copies for further distribution, you can buy them.

At any rate have a special display rack for these agricultural station bulletins, and advertise them. Invite farmers to come in and sit down in a chair and read them. Quote from them in your selling. You'll find that these bulletins will help you give the farmer the profit information he wants and it will help you sell.

And don't fill that special display rack with bulletins about the products you stock and sell. Have a separate rack for those. Don't confuse information and education material. Let them do their individual selling job in their own way.

7. **Making use of official recommendations.** I have found in my travels in many states that farmers do not generally apply all the fertilizer in amounts recommended by state experimental station experts. In many other regions, state experimental station reports show that farmers could apply 30 to 70% more fertilizer to attain the best results.

I do not believe that fertilizer dealers as a whole play up such recommendations enough. When you publish an ad for fertilizer for corn, potatoes, small grains, wheat, peanuts, cotton or whatever crop it is, why not publish with this ad the recommendations of the state experimental station on fertilizing the crop in that state?

Most certainly this will acquaint many farmers with the fact that if they follow such recommendations they can be assured of good results. It may also show a few farmers that there are higher recommended fertilization levels than they thought possible.

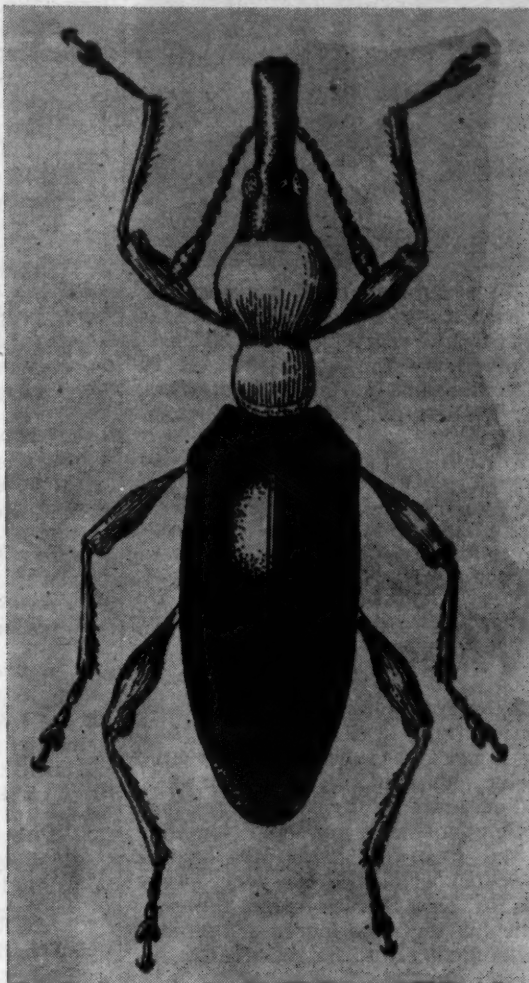
Remember, farmers do not all read the state experimental station reports as thoroughly as you do. It is your business to call many essential, authentic facts to the attention of your customers.

There are other things which the alert fertilizer dealer can do to make his business profitable and progress the above suggestions he will find that sive. But if he follows a majority of more farmers will be stopping at his store, because they will know that here is a dealer who gives service that a farmer can profitably use.

BUG OF THE WEEK

Mr. Dealer—Cut out this page for your bulletin board

Sweet Potato Weevil



How to Identify

The adult insect (shown here) is about a quarter-inch in length, and is distinguished by its slender, shiny body and easily-noted snout. The bug's colors are also characteristic. The head is bluish-black, while the legs and middle portion of the insect are red in color. In the grub stage, the pest is white and about a third of an inch in length. It is legless in this stage, and usually fat appearing.

Habits of the Weevil

The sweetpotato weevil lays its eggs in small holes that it makes in the stems of sweet potato plants or directly in the potatoes themselves. In about a week, the eggs hatch into small, white grubs which feed and grow in the vines or in the potatoes. In two or three weeks, the grub reaches its full growth. While it is still in the stem or potato, the grub changes into the pupa, or resting stage in which it remains for a week or more before the weevil emerges by eating its way out.

Damage Done by Insect

Sweetpotato weevils do tremendous damage to plants, often rendering the potato unfit for any kind of feed, human or animal. Grubs do damage by feeding within the stems, roots

and potatoes. Small holes in groups on the surface of the potatoes are either feeding marks or holes made by females in laying their eggs. Roots and tubers of sweet potato plants may be honeycombed by numerous grubs which leave tunnels filled with excrement. When weevily potatoes are cut open, the grub-made tunnels can be seen, often with grubs or pupae still in them. Sweetpotatoes thus infested have a bitter taste and are totally unfit for food.

Control of Sweetpotato Weevil

Cultural practices rate high in control of this pest, but a number of pesticidal products are available to do the job. (Experiment Stations and county agents in the half-dozen or more southern states in which the weevil occurs, can provide accurate information on materials to use, amounts, and methods of application.) If infestation is light, rotation of crops will deprive the pest of its food supply for a year which is said to eradicate it. Sweetpotatoes should not be grown anywhere within an area extending from ½ mile to 1 mile from any known infestation. Destruction of plant residues on an infested field is another recommended practice. Federal and state quaranties prohibit the transfer of sweetpotatoes from an infested area.

Illustration of sweetpotato weevil furnished Croplife through courtesy of the U.S. Department of Agriculture.

Previous "Bug of the Week" features are being reprinted in attractive 24-page booklet, priced at 25¢ single copies; reduced rates in quantities. Write Croplife Reprint Dept., Box 67, Minneapolis 1, Minn.



AT NEW JERSEY SOILS MEETING—Above are members of a committee named at the New Jersey Soils meeting to study the possibility of forming a New Jersey plant food association. From left to right are Wallace A. Mitcheltree, extension soils specialist, Rutgers University; F. R. Anspach, I. P. Thomas Division, Pennsylvania Salt Mfg. Co.; Laurens D. Hardin, Limestone Products Corporation of America, and Dr. Russell B. Alderfer, chairman, Rutgers soils department.

Move to Start New Jersey Plant Food Group Approved At Rutgers Soils Meeting

NEW BRUNSWICK—New Jersey plant food representatives favor a statewide organization for educational purposes, somewhat following patterns established in other states.

Sentiments in favor of a state association were expressed at the annual one-day soils school at Rutgers University's College of Agriculture Nov. 9. Wallace A. Mitcheltree, extension specialist in soils at Rutgers, who arranged the conference, proposed the organization as an additional means of getting information to representatives and salesmen who make frequent contacts with farmers.

With the consent of the group, Mr. Mitcheltree appointed a committee to study the possibilities further, as a step toward possible formation of an association at next year's soils meeting at Rutgers. On the committee are Mr. Mitcheltree, F. R. Anspach of the I. P. Thomas Division, Pennsylvania Salt Manufacturing Co., Paulsboro, N.J.; Laurens D. Hardin, Limestone Products Corporation of America, Sussex, N.J., and Dr. Russell B. Alderfer, chairman of the soils department at Rutgers.

Among speakers favoring the proposal was Dr. Arthur M. Smith of the Olin Mathieson Chemical Corp., Baltimore, Md., who pointed out New Jersey's importance as a fertilizer-consuming state. Dealers, he said, are often poorly informed on fertilizer uses. Dr. Smith urged farmer membership in the group.

Emphasis at the meeting was on organic matter, with four Rutgers staff members discussing separate phases of the topic.

Dr. Robert L. Starkey, chairman of the department of agricultural microbiology, reminded his audience that organic matter, in addition to its other physical and chemical effects on soils, supports growth of microorganisms that alter the availability of plant nutrients in various ways. He described laboratory techniques to support his statement that microorganisms must have various plant nutrients to do their work.

Dr. Alderfer declared that organic matter can have a great deal to do

with the creation and maintenance of the ideal physical condition of soil. An important function of organic matter, he said, is to serve as a binding material by which the finer particles of soil are held together in the form of crumb-like aggregates. Experiments on very sandy soils in New Jersey show that organic matter may increase aggregation sufficiently to be reflected in increased crop yields.

Dr. David Pramer, assistant professor of agricultural microbiology, delivered a paper dealing with organic matter decomposition, the role of soil microorganisms in the decomposition process, and the products of decomposition.

Mr. Mitcheltree described how organic matter acts in the soil. He pointed out that organic matter is the food of the soil, and so should be thought of as a growth process, rather than one of decomposition.

Dr. E. R. Purvis, Rutgers professor of soils, discussed fertilizer-pesticide mixtures.

He also stated that the New Jersey Experiment Station is making no changes this year in its fertilizer recommendations. He noted a rather general tendency to use increasing amounts of nitrogen, and briefly described an experiment at the Rutgers Dairy Research Farm in Beemerville to build a high protein grass to compete with legumes as a forage crop.

In the test, researchers got a 12% protein yield from orchard grass that received 50 lb. of nitrogen to the acre. The protein yield went up to around 20%—or above the alfalfa protein yield—when nitrogen was increased to 400 lb. an acre.

The next question to be decided is whether animals will eat such high protein hay and whether they will produce on it. Tests along this line will be conducted this winter.

DUTCH ELM DISEASE

KINGSTON, R.I.—More than 3,000 elm trees have died from Dutch elm disease in the last three years in Rhode Island.

What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

Pennsylvania Salt Manufacturing Co. started construction of a plant for production of granular type commercial fertilizers in Paulsboro, N.J. . . . The Portland (Ore.) Seed Co. bought controlling stock in the Chas. H. Lilly Co., Seattle.

Acreage allotments for cotton in 1956 were announced by USDA. The new figure is 721,904 acres less than those allotted for 1955. Twenty one states were listed in the allocations. . . . California Fertilizer Associations voted to include aqua ammonia converters and distributors of fertilizers eligible for CFA membership, in an expansion move. The 36th annual CFA convention was held at San Francisco, Nov. 6-8.

The USDA predicted a cotton output of 14.8 million bales for 1955. Harvesting conditions were unusually good this year. . . . Specialty Oil Products announced the sale of its Ammo-Gro Division to a new group incorporated under the name of Ammo-Gro, Inc.

Howard L. Peterson was named president of the Nebraska Fertilizer Institute, Inc., at a meeting in Lincoln. . . . GLF Exchange dedicated its new \$750,000 fertilizer plant at Big Flats, N.Y. . . . Shell Chemical Co., Ltd., and Fisons, Ltd., announced that they would act together in the construction of two new fertilizer plants in England. Total expenditure was announced as \$30,800,000.

Diamond Black Leaf Co. announced Nov. 2 that it would take over operation of Geigy Agricultural Chemical Co. plant at Des Moines, Iowa, on Dec. 1. Emil P. Gerdes, Midwestern manager for Geigy, joined Diamond and will remain in Des Moines.

The need for dealer education and better sales promotion tools were stressed at the annual convention of the Northwest Plant Food Assn. at Bend, Ore., Nov. 1-3. Dr. Russell Coleman, executive vice president, National Plant Food Institute, was a featured speaker.

A heavy explosion ripped through the Velsicol Chemical Corp. plant at Memphis, Tenn., on Nov. 2, killing one worker and injuring 15 others. Cause of the blast was not determined immediately. . . . The Food and Drug Administration extended the date that the Miller Amendment becomes effective on 33 chemical compounds. A group of 20 pesticides were to come under the law on Jan. 22 and 13 others, on March 1.

Potash deliveries in the U.S. and possessions for the first nine months of 1955 were up 7%, according to a report by the American Potash Institute, Washington, D.C.

The U.S. Department of Agriculture reported that consumption of fertilizer-pesticide mixtures totaled 149,100 tons in the 1953-54 fiscal year. This represented a gain from 87,000 tons during a year earlier.

Dr. W. J. Zaumeyer, U.S. Department of Agriculture plant pathologist, told the First International Conference on the use of Antibiotics in Agriculture in Washington that soon antibiotics may be used as widely for plant disease control as they now are for control of human diseases.

M. P. Etheredge, State College, Miss., was named president of the Association of American Control Officials at the group's annual convention in Washington. . . . Clyde A. Bower, Oklahoma City, was elected president of the Association of American Pesticide Control Officials. . . . Curtis A. Cox, Virginia-Carolina Chemical Corp., is new general chairman of the Fertilizer Section of the National Safety Council. . . . The National Nitrogen Solutions Assn. renamed Wayne Johnson, Shenandoah, Iowa, as president.

Davison Chemical Co. Division of W. R. Grace & Co. will build a liquid fertilizer plant at Wakarusa, Ind. . . . U.S. exports of pesticides in the first half of 1955 increased 18% over those during the first half of 1954.

Raising corn by modern methods more than doubled yields and nearly tripled returns over methods used 30 years ago in a demonstration conducted on a Red Wing, Minn., farm. The "corn today" yielded 123 bu. an acre and returned \$90 an acre, compared with a 59 bu. yield and \$35 return for the "corn yesterday."

In its annual fertilizer situation report the U.S. Department of Agriculture estimated that supplies of the three principal plant nutrients in 1955-56 would exceed the 1954-55 supply by 2.5%. USDA made these estimates: 2.35 million tons of nitrogen, 4.4% more than the 2.25 million tons in 1954-55; 2.3 million tons of available phosphoric acid, little change; 1.94 million tons K₂O, an increase of 4.3% over the 1.86 million tons a year ago.

Lamar Ratliff, 16-year-old Mississippi 4-H clubber, raised an official yield of 304 bu. an acre on his corn plot.

Traffic experts in the fertilizer field said that the new rates announced by Interstate Commerce Commission on trainloads of commodities from one shipper to a single consignee, will not likely apply to fertilizer. However, it was regarded as a "foot in the door" which might lead to better rates in the future.

Food and Drug Administration used its five-man advisory board to establish a tolerance of one part per million on U.S. Rubber's Naugatuck Division pesticide, Aramite. This was the first time the committee had been called into play. . . . The American Potash Institute, Washington, D.C., observed its 20th anniversary. It was launched in 1935.

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Southern Nitrogen Elects Six New Board Members

NEW YORK—Election of six new directors to the membership of the board of the recently formed Southern Nitrogen Co., Inc., which is constructing a \$14,000,000 petrochemicals plant in Savannah, Ga., was announced Nov. 23 by John R. Riley, president.

In addition to Mr. Riley, Malcolm Smith, board chairman, and George W. Taylor, vice president, the board now consists of Franz Schneider, former executive vice president and chairman of the executive committee of Newmont Mining Corp.; Donald Stuart Russell, president of the University of South Carolina; Richard H. Samuels, vice president of Continental Casualty Co.; Richard F. Brown, newly elected vice president in charge of operations of Southern Nitrogen Co., Inc.; James A. Lyles, vice president of the First Boston Corp., and W. W. Foshay, partner of the law firm of Sullivan & Cromwell.

The Southern Nitrogen Savannah plant will produce 250 tons a day of nitrogen solutions for fertilizer use, and prilled ammonium nitrate. It is expected to begin production early in 1957.

Mr. Schneider is a director of Continental Oil Co., the Federal Reserve Bank of New York, Newmont Mining Corp., Pacific Northwest Pipeline Corp., Phelps-Dodge Copper Corp., Transcontinental Gas-Line Corp. and other companies, and a trustee of the Mutual Life Insurance Co. of New York. A former financial editor of the N.Y. Evening Post and The New York Sun, he has served as a member of two important task forces of the Hoover Commission.

Mr. Russell, a former law partner of James F. Byrnes, served as Mr. Byrnes' assistant in the Office of War Mobilization during World War II, and was later deputy director of the Office of War Mobilization Reconversion. In 1945 he was appointed assistant secretary of state, serving until 1947 when he resumed the practice of law. He was elected president of the University of Southern Carolina in 1951 and has been a member of the secretary of state's Public Committee on Personnel since 1954.

Joining Continental Casualty Co. as a security analyst in 1936, Mr. Samuels later served as assistant treasurer and financial secretary. He was elected vice president in 1955. He is a director of Oil Basin Pipeline Co. and Pioneer Finance Co.

Mr. Brown was formerly vice president and general works manager of Spencer Chemical Co. In addition he has held the position of director of research and development, director of industrial services and chief engineer of Spencer.

Mr. Lyles is vice president and director of The First Boston Corp. Mr. Foshay is a partner of Sullivan & Cromwell and a director of Old Town Corp.

An executive committee composed of Mr. Schneider, Mr. Smith, Mr. Riley, Mr. Taylor and Mr. Brown was also elected.

BOOSTS COTTON YIELD

DAVIS, CAL.—Dr. D. S. Mikkelsen, assistant agronomist, University of California, reports that fertilizer experiments with seed cotton grown on Hesperia sandy loam in Kern County have shown that treatments with combined nitrogen-phosphate increase yields by as much as 100% over unfertilized plots.

GOBBLED UP

WASHINGTON — About 50,000 farms in the nation were absorbed by the farm enlargement process in 1954, reports the U.S. Department of Agriculture.

Harvest Nears Completion in Mid-South States

MEMPHIS—Many farmers in the mid-South now are turning their attention to winter tasks—repairing farm buildings and fences and attending year-end farm meetings.

Extension agents in Arkansas, Mississippi, Missouri and Tennessee reported activity moved closer to the slack winter season as farmers near the completion of their harvests.

Rain and cold weather hampered the finishing of the cotton harvest and cut the grade of cotton still in the fields. The cold snap caught many farmers unprepared to handle their farm machinery and cattle.

After completing their cotton picking, many Mississippi farmers turned their attention to corn harvesting. In the southern part of the state, pecan harvesting neared completion and in the northern part of Mississippi harvesting is well advanced, according to Chesley Hines, extension horticulturist.

While below the 10-year average, Mr. Hines reported the 1955 pecan crop is estimated at five and a half million pounds, which is slightly more than in 1954. Prices are favorable and the quality generally good.

Mr. Hines also said home orchard growers have ordered peach and pecan trees for December planting. Other activities now being carried out by Mississippi farmers include cutting of cotton stalks and cleaning

off home gardens. Many livestock producers are treating cattle for lice control.

Heavy rains over much of Arkansas helped winter cover crops, but also produced a cold weather snap which found many farmers unprepared for winter as regards caring for livestock and storing of farm machinery.

The Arkansas Agricultural Extension Service said the rain interrupted cotton picking in most areas but that harvesting of all other crops was practically complete.

Farmers, however, still had some cotton in the fields and picking from now on out probably will be done as weather permits.

West Tennessee farmers will harvest a "fine" corn crop, according to Lewis Dickson, University of Tennessee extension agronomist. Farmers in the area also are harvesting a bumper cotton crop despite adverse weather conditions in the early fall and gathering season.

In southeast Missouri cold weather cut down threshing of the soybean crop, extension officials said.

The cold weather failed to hurt most of the barley, rye, and vetch, which has been seeded, W. F. James, Pemiscot County agent, said.

HEADS FOREST UNIT

LARAMIE, WYO. — Wallace M. Johnson, range conservationist, recently took charge of the Forest Service research unit in Laramie. He replaced Clark Martin, who was transferred to a similar position at a field unit in Tucson, Ariz.

Fertilizer Returns Up to \$3 for \$1 On Kansas Wheat

MANHATTAN, KANSAS—In extensive tests with fertilizer at Kansas State College it was found that properly used on wheat a return of \$2.50 to \$3 can be expected for each dollar spent on fertilizer.

F. W. Smith, agronomist at the college said that in most of central Kansas and in virtually all of eastern Kansas wheat responds to fertilizer most of the time. Wheat is particularly responsive to nitrogen in years of above average rainfall and is responsive to phosphorus, he said. Wheat will usually respond to applications of as high as 40 to 50 lb. of nitrogen per acre.

CALIFORNIA VISITOR

SACRAMENTO—Dr. Carl Gustaf von Hofsten, chief of the chemical department, Federation of Farm Organizations, Stockholm, Sweden, was a recent visitor to the California Department of Agriculture. He is in the U.S. on a travel-study tour observing work in the control of weeds, insects and plant diseases and the use of the airplane in agriculture.

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D. W. Thorne and H. B. Peterson, Department of Agronomy, Utah State Agricultural College. Dr. Thorne is also Chief of Soils and Fertilizer Research Branch, Tennessee Valley Authority.

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A new book, with special reference to Anhydrous Ammonia and other sources of nitrogen in liquid form. Deals also with legumes as a source of soil nitrogen, and the uncertainty of green manures; the response of soil to phosphorus, potash and soda; the effect of fertilizers on yield and feeding value of hay and pasture crops. 468 pages, 19 chapters, 89 illustrations. **\$4.50**

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Donald P. Hopkins

The theme of the book is the necessity of chemical fertilizers to maintain the fertility of the soil. It has concise information on which soil conditions and which chemical fertilizers are most suited for special crops and vegetables. Space is devoted to cereal crops, barley, wheat, oats and rye; to roots and tubers, sugar beets, potatoes, carrots, parsnips and turnips; to vegetable crops, beans, peas, alfalfa, lupines; to grasses and clovers; to onions, flax, kale, cabbages, lettuce, tomatoes, celery, cauliflower and fruits. It clarifies the relationship of manures, compost and chemicals as fertilizers and points out how chemicals should be used to obtain the best results. Its philosophical soundness and logic should do much to avert the confusion of thought introduced by the advocates of compost and manure as against the use of chemical fertilizers. **\$8.50**

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MIDDLE WEST SOIL IMPROVEMENT BOARD—Pictured at Chicago where the MWSIC held its annual business meeting Oct. 27, are the members of the board of directors, as follows: (Standing, L. to R.) K. W. Wagenseller, Swift & Co.; D. A. Williams, Minnesota Farm Bureau Service Co.; C. R. Sparks, Buhner Fertilizer Co.; E. T. Potterton, International Minerals and Chemical Corp.; A. R. Mullin, Indiana Farm Bureau Coop.; Seated: Z. H. Beers, Middle West Soil Improvement Committee; R. E. Bennett, Farm Fertilizers, Inc.; W. M. Newman, Price Chemical Co.; H. E. Wood, The Farmers Fertilizer Co. and R. A. Weis, Virginia-Carolina Chemical Co. (Not shown: L. E. Quiram, Illinois Farm Supply and J. D. Stewart, Federal Chemical Co. and George Kingsbury, Kingsbury & Co.) The lower photo shows new officers named at the meeting: W. M. Newman, president (right) and Richard E. Bennett, vice president, at the left. Absent when picture was taken, was George Kingsbury, Indianapolis, Ind., treasurer. (Photos courtesy of Middle West Soil Improvement Committee.)



WINNING DESIGN—Shell Chemical Corp.'s new matchbook design has been awarded top honors in its category by the American Match Institute. The design (inset), which advertises the company's ammonium sulphate fertilizer, won out over some 1,500 entries. R. W. Emerson, of Shell Chemical, designed the matchbook cover. He looks on, above, right as Howard Meyers, national sales manager of Lion Match Co., manufacturer of the matchbooks, presents the award plaque to V. C. Irvine, sales manager of Shell's ammonia division. Additional awards to producers of agricultural chemicals went to Carbide and Carbon Chemicals Co. of New York City; Mathieson Chemical Co., Phoenix (Ammono-Phos fertilizer), and Mid-South Chemical Co. of Memphis (Ag-Amm fertilizer and No-Ho weed-killers).

Role of Pesticide Salesman Becomes More Important as Residue Problems Increase

The pesticide salesman is a "many slandered thing," depending on how one looks at it. He plays an important part in the agricultural economy, with the industry regarding him as a stalwart soul in shining armor, carrying the light and the message out into a dark world. He is the middleman between the manufacturer who has wrested the scientific truth from nature in his laboratory and forged the weapons of defense for the farmer. Without these, the grower would succumb, economically if not personally, to the ravages of insects, pestilence, and disease.

But the salesman sometimes takes on an entirely different appearance to others, such as annoyed officials, agricultural advisers and disgruntled farmers who picture him as a dark creature with horns and tail, who coerces the farmer into buying worthless materials for control of pests that aren't present, and buying materials that destroy more of the crop than the pest itself would have done. Personally, we have never had the opportunity to see a pesticide salesman in either of these splendid roles. The pesticide salesmen we meet are just ordinary fellows like ourselves, who are trying to do a good job in a complicated and sometimes baffling field.

Although the two groups of people paint such a different picture of the pesticide salesman, they both agree on his importance. It is in recognition of his importance, and not with the implication that he is conspicuously in need of a moral lecture, that we are now considering his responsibilities.

Section 1066.1 of the Agricultural Code of California establishes what might be regarded as the minimum level of responsibility required of a pesticide salesman. It states:

"Any person is guilty of a misdemeanor who, by himself, or through another, in connection with the sale of any substance or mixture of substances included within the scope of this article:

- (a) Makes any material or substantial misrepresentation.
- (b) Makes any false promises of a character likely to influence, induce or deceive.
- (c) Engages in illegitimate business or dishonest dealing.
- (d) Causes to be published or distributed false or misleading literature, or causes to be displayed false or misleading advertisements."

It has rarely been necessary to file charges under this section. In most cases when complaint of misrepresentation has reached our office, we have held a hearing to investigate the report. The salesman, the farmer, the manufacturer, and other interested persons have been invited to meet and discuss the matter together. It is generally found that the trouble arose not from misrepresentation but from misunderstanding and a failure to provide the farmer with a clear picture of what he should have done with the pesticide or what precautions he should have taken.

We have heard complaints that salesmen promoted use of pesticides when treatment was not needed. We have been told of a salesman who industriously swept a field with his net back and forth and up and down until he had an impressive collection of miscellaneous bugs to show to the farmer and alarm him into making an unnecessary or premature application of a pesticide.

We have heard complaints that salesmen spread unwarranted rumors that competitive products were cancer-producers, that competitive products would leave residues subjecting

EDITOR'S NOTE

This article is adapted from a talk made by Robert Z. Rollins, assistant chief, Bureau of Chemistry, California State Department of Agriculture, Sacramento, before the annual meeting of the Western Agricultural Chemicals Assn. at Berkeley, Cal.

the farmer to lawsuit and his crops to condemnation, and that competitive products affected the taste of crops to which they were applied. It is difficult to evaluate some of these reports, which Tom thought that Dick had heard from Harry. These things happen rarely, everyone agrees that such alarms hurt the pesticide industry, and there is little point in discussing them further.

More commonly the complaints that are made about pesticide salesmen do not charge them with doing something that they should not do, but rather failing to do something that they should do. In other words, they are sometimes charged with not doing a full job.

We have heard complaints that salesmen failed to inform a farmer that certain precautions were needed to prevent damage to his crop or injury to himself. Salesmen failed to tell him of certain requirements of law, for example that a permit from the county agricultural commissioner was needed to apply calcium arsenate dust, parathion, 2,4-D and certain other compounds in California. They failed to warn him of the hazard of drift onto his neighbor's crop, the hazard to livestock, or to honeybees. They failed to tell him about proper disposal of emptied containers. They failed to tell him about the incompatibility of one pesticide with another in the farmer's spray program. They failed to warn him that late application would leave excessive residues on his crop at harvest time and that brings us to the big topic of the day.

Among the problems that face the farmer, and consequently the salesman, the one most commonly discussed in recent months is the matter of spray residues. Everyone agrees that a farmer has not been served well if he controls his pests in a manner that makes his crop unmarketable because it bears excessive residue, but there is a very real problem of knowing what can be recommended that will do the job of pest control, knowing when it can be used and yet keep the residue on the crop within tolerance limits. How much residue is on a crop after it has been treated with a pesticide? This is one of the questions that manufacturers, salesmen, processors, and agricultural advisers are asking, and with good reason.

Lea S. Hitchner, executive secretary of the National Agricultural Chemicals Association, has said, "If some grower's crop is seized and condemned because of a residue in excess of a tolerance or for which no tolerance has been established, he will undoubtedly seek to recover the value of the crop. If he can establish that such illegal residue resulted from following a company's recommendations or directions for use, that company may be found liable."

There is great need for dependable knowledge of the amount of residue that can be expected from certain treatments on certain crops and how fast these residues disappear. Without such information, recommendations

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HAMMOND BAG PARTY—Representatives of the various industries it serves in the Upper Midwest area were entertained recently by Hammond Bag & Paper Co., Inc. The informal cocktail and dinner party, arranged by J. O. Mickelson, district sales representative of the company in Minneapolis, was held at the Interlachen Country Club, Minneapolis. Assisting Mr. Mickelson as host were other officials of the company, including M. J. Davis, president, and M. E. Greiner, vice president and sales manager, both of Wausburg, Va.; A. E. Weaver, manager of the company operations at Pine Bluff, Ark., and D. E. Tobey, district sales representative at Kansas City. In the photo, left to right, are Wilfred E. Lingren, Croplife, Minneapolis; Mr. Davis; Leo S. Becker, McCabe Co., Minneapolis, and Clifford Olson and Ronald Edstrom, Glencoe (Minn.) Milling Co.

ons cannot be made with certainty and the grower cannot plan his program. We need this information and we need it now. We need to know the rate of pesticide residues on California crops under California conditions and we need to have what is known made more readily available for use.

The pesticide industry has been the major factor in securing the information on residues that is now available. Much of the information that we do have comes from industrial laboratories, from analyses made by commercial laboratories for firms developing new pesticides, and from analyses made under grants of money the industry has made to state and federal research projects. This vast amount of information that has already been secured needs to be pooled, assembled, digested and made available as a basis for recommendations in light of the present residue tolerances.

There is slowly developing what might be regarded as a standard or semi-official schedule of the latest application that can be made of each pesticide on each crop to keep residues within tolerances. Official rulings or an officially-adopted timetable is requested by manufacturers preparing labels for their products, by advisory agencies preparing recommendations for control of certain pests, by processors seeking some assurance against being involved in marketing over-tolerance produce, and by pesticide salesmen who want to know how close to harvest their own product and competitive products can be applied.

However, the amount of residue left on treated produce depends upon a number of other factors in addition to the time of application. As the radio commentators say, it will be denied in official quarters that such an official schedule exists and at least six good reasons can be given why an exact schedule cannot be possible.

1. In the first place, what is the spray load on the produce immediately after application and how fast does it weather off the growing crop? Francis Gunther and Roger Blinn, of the University of California at Riverside, are making an excellent contribution toward answering these particular questions in the forthcoming Annual Review of Entomology, in which they show some typical residues right after application and two weeks later, and calculate the half-life of many typical residues on various plant parts.

2. In the second place, what dosage is applied? All other things being equal, a crop sprayed with one pound

of a pesticide per acre will probably meet a certain tolerance at an earlier date than the same crop sprayed with 10 lb. per acre.

3. In the third place, what other pesticide application is involved in the spray program? It is evident that each treatment contributes something to the final residue. If a crop has been dusted each week for several months, probably the last application of a persistent pesticide cannot be made as close to harvest as it can be where the "last" application is the only one.

4. What other pesticides, diluents, or spray adjuvants are involved? Some other components in the spray mixture may be deliberately added to increase the wetting of the plant surface, increase the initial deposit, retard weathering or decomposition of the pesticide, reduce its volatility, or increase its effectiveness in some other way. Thus the residual deposit of a pesticide remaining two weeks after harvest depends in part on the other constituents that may be in the products or may be added separately to the spray mixture.

5. What are the weather conditions? Rain, dew, wind, sunshine, and overhead irrigation, all influence the rate at which the pesticide disappears from the plant. The persistence of a spray residue in the coastal area of California might be greatly different from that in the interior of the state. The persistence of a spray residue in spring might be different from that in fall.

6. How will the crop be conditioned before marketing? Some crops are marketed as they are picked. Others, like canning tomatoes, are thoroughly washed and some, like lettuce and cabbage, are stripped to various degrees at harvest time so the portion exposed to the pesticide is partially or wholly removed and discarded.

But in spite of all these good reasons why a specific and accurate timetable cannot be made for pesticides, we do need and can develop a practical, rule-of-thumb period for most pesticides on most crops under most circumstances. Such a schedule will not give complete assurance that the crop will meet tolerances any more than driving an automobile in accordance with law will guarantee against accidents, but it should provide everyone with a much-needed working basis for action.

At first glance, the adoption of a schedule of "safe periods" for pesticides seems not to be too difficult, and that an ample time can be established to make certain that the residue will be below tolerance in nearly all cases. However, there

are practical reasons why such a period will be repeatedly questioned until it is reduced to the point where the deciding factor is: how safe should the safe period be?

Growers are sometimes faced with an acute problem where application is needed and harvest is critically close. Manufacturers and salesmen are faced with competitive recommendations and the economic advantages in being able to apply one pesticide a few days closer to harvest than another can be used. At present, the accepted periods for some pesticides are 5, 7, 10, 12, 14, 15, 20, 21, and 30 days before harvest. Of course, for some products the interval is still longer.

Actually, the available data do not and probably never will justify distinctions so finely drawn as 12, 14, and 15 days. There might be some merit in a mutual agreement to speak of weeks instead of days and to use standard intervals of 1, 2, 3, and 4 weeks insofar as recommendations are concerned. This would avoid meaningless comparisons between products in terms of one or two days and avoid debates about whether a farmer can spray today but not tomorrow. The fine distinctions involving one or two days could still be made by the farmer on whose shoulders the responsibility ultimately descends. If he applies a pesticide critically close to harvest, he will be aware of the hazard and can compensate by stripping his lettuce severely or washing his pears thoroughly at harvest time or in some other manner condition his crop to increase his margin of safety.

In the increasing complexity of pesticidal chemicals and the increasing concern in their possible effect on the quality of foodstuffs, we have reached the point where a farmer cannot conduct pest control in an off-hand and irresponsible manner. More farmers need to organize their operations and develop a planned program of pest control in advance, insofar as infestations can be foreseen.

Competent and continued surveillance of the field should be made to determine the nature and extent of pest development of beneficial parasites, and to determine whether the infestation warrants treatment and when treatment should be made. This includes competent identification of insects and mites, knowledge of their potential development and damage, and knowledge of the effects of pesticides on them.

The best pesticide should then be selected after considering its effectiveness on the pest, effect on beneficial predators, its suitability for application with available equipment, its effect on neighboring crops if drift occurs, and its effect on the taste or quality of the crop.

The effect on subsequent crops should be considered as should compatibility with a pesticide previously applied and compatibility with a pesticide that might be subsequently applied. The effect of the pesticide on honeybees foraging in the field and on neighboring plants where drift may reach, must be considered, and its effect on crop residues. (DDT dusts may render sweet corn stalks unfit for fodder.) Finally, one must calculate the persistence of residues in light of current tolerances and price.

Fortunate is the salesman who has in his book the best product for every situation, for he will not be faced with the responsibility of recommending a competitive product.

Applications should be timed for the pest, the crop, the area, and the season. A properly-timed application requires less material and provides more satisfactory control than an application made at random. It has been known for years that, for some species at least, bugs are much easier to kill when they are young. Although pesticides should not be applied when

not needed, it is equally important that their use not be postponed when an incipient infestation can be treated effectively. Proper timing can do much to minimize residues at harvest time. In some cases an effective dormant program reduces the number of summer treatments needed.

Pesticides should be applied properly to do their job, and the manner and technique of application cannot be safely abandoned to the discretion of the farmer or the pest control operator unless they are familiar with the techniques involved in use of the particular product. Inadequate coverage, lack of agitation of a spray mixture when it is needed, or improper dilution may fail to provide control and the material then mistakenly blamed for the failure.

Salesmen cannot be saddled with the entire task of educating growers or running their business for them, and we all know that some growers will not listen to anyone, even those who try to help them. But all of us share the responsibility of the salesman in doing the best we can to see that pesticides are used as they should be used. Ultimately, of course, it is the farmer's responsibility to use pesticides properly, but we all stand or fall with him in the degree to which he does what he should do. If a farmer does not handle a pesticide properly, he is apt to get in trouble. He is apt to hurt himself, his livestock, his crop. He is apt to get in trouble with his neighbor if the material drifts across property lines. He is apt to get in trouble with his processor or with agencies enforcing spray residue tolerances. And an industry with a customer in trouble is in trouble itself.

This is not to imply that a pesticide salesman must be an entomologist, a plant pathologist, a marketing economist, and a chemist, or be competent to provide advice on all these technical problems himself. But he should know, and be constantly aware, that a farmer operating without benefit of such advice may be heading for trouble—and taking the salesman with him. When men are climbing a mountain, roped together, just as a salesman and a farmer are together concerned in use of a pesticide, the welfare of each is the immediate concern of the other. If the farmer is in trouble, the salesman is too.

It is the responsibility of the pesticide salesman, backed by all the assistance that industry and advisory and regulatory agencies can give him, to do his best to see that pesticides are used when they are needed, where they are needed, and how they are needed. He should do his best to see that pesticides are not used too much, too often, or too late. It is his responsibility to do his best to sell not just a pesticide but an effective pest control program.

Insect, Weed Control on Corn Conference Program

CHICAGO—New developments in insect and weed control in corn production will receive attention at the tenth annual Hybrid Corn Industry-Research Conference to be held at the La Salle Hotel here Nov. 30 and Dec. 1.

Appearing on a Dec. 1 panel on aids in corn production will be Dr. T. A. Brindley, Iowa State College, who will discuss insect control developments, and O. C. Lee, Purdue University, who will talk about chemical weed control.

Florida Consumption

TALLAHASSEE — Fertilizer consumption during September in Florida totaled 113,935 tons, according to the state Department of Agriculture. The total included 52,242 tons of mixed goods and 61,693 tons of materials.

FARM REVOLUTION

(Continued from page 1)

World War II, the U.S. farm policy has been geared to a price support program basically designed to cushion the farm community from the rough descent from a war-stimulated level of production to the lower levels of consumption and demand that followed the peace. That support program was set for the basic agricultural commodities at 90% of parity, and later political operators of the farm economy steadily pushed price support levels for non-basic commodities into higher ground and at the same time failed to impose acreage controls at a time when even the least sophisticated observers sensed the danger of surpluses.

But the day of reckoning is at hand. The surpluses of wheat and cotton are the first shocking warning of what lies ahead. As USDA attempts to use the ineffective techniques of acreage controls on the surplus crops, the farm community, in a desperate attempt to maintain income requisite to the successful operation of the farm unit, shifts its land into other crops even at lower levels of support, thereby setting the stage for further surpluses in these secondary commodities.

The politicians of both major parties are acting according to their nature, bemoaning the fate of the small family farm which they sentimentally call "a way of life." No one can doubt the great contributions of the farm family to the U.S. social system. But modern conditions seem to indicate that the situation of the small family farm unit is rapidly passing from the economic scene with the unknown losses to the social system. It is noted that more than 3 million persons have left farms since 1950 and the end is not yet.

It is not difficult to focus on the similarity between the current farm economic-social problem and that of the home industries that existed in western Europe prior to the industrial revolution.

There are few informed persons who do not recognize that similarity, but it is an unholy thing to mention publicly since it has unpleasant political connotations. Probably one of the best informed persons in the U.S. farm economy, True D. Morse, under secretary of agriculture, came to the issue gingerly when he advocated a policy of education for the small farmer coupled with assistance which would permit the farmer to revise his farming operations into more economic units whereby he can compete cost-wise with what are now called in many quarters factory-farms. This term now seems to carry with it a derogatory meaning, implying that the factory farm is grinding out the small farmer unfairly.

Perhaps it may be appropriate to hark back to days immediately after World War I when one of the more popular songs on Broadway and across the nation caroled "How you gonna keep 'em down on the farm, after they've seen Paree?" Unwittingly, that phrase may have marked the end of an era and forecast conditions which the U.S. faces today.

Today the problem is: Shall the nation, through vicarious methods, attempt to maintain the fiction of the family farm as an economic entity through some form or type of subsidy, or shall the country face up to the broad economic issue and provide some method whereby the production of food and fiber can be brought into proper relationship with income returns from the highly efficient mass production industries which are steadily paying higher wages at fewer hours of work per week and at the same time giving the consumer better products for relatively few dollars?

Little is to be gained from attacks on the politicians who call for a return to a high price support level for the basic commodities. In many com-

munities the farmers who elect senators and representatives have found in the high levels of supports a comforting financial backstop. If their elected officials desert the high level of price support banner then they will turn them out of office and replace them with others who will follow the high support concept blindly.

One difficulty is that industry and banks themselves, with their vast stakes in the financial well-being of the farm communities, have not given this problem more attention. Signs now, however, indicate that big industry is thinking about the farmer and the farm program. Only recently the chairman of the board of the U.S. Steel Corp. spoke out on the farm problem in an address at Kansas State College, noting with emphasis that big industry had a special interest in the financial well-being of the farmer.

Most observers feel that the utility of the high price support programs is definitely ended. Doubts now are arising that even a flexible system will be workable in face of huge commodity surpluses. The political doctors now seem about to prescribe variations of both with some new wrinkles such as variable levels of support based on quality of production, all of which are little more than palliatives which are not designed to cure the economic malady affecting the farmer.

Price supports at any level are in many respects unequal in the good they provoke. Take, for example, the inequities which arise from the price support levels for feed grains. A high level of price support for the cash corn farmer in Iowa seems highly desirable to him. Price supports on corn mean little to the hog-corn farmer since he probably would prefer to buy his corn feeding requirements in the market place at a low price and send his corn to urban markets on the hoof at good prices.

Likewise, in the deficit feeding areas, producers of milk, poultry and cattle find the price support programs a penalty on them since they see higher feed prices as they result from high price support programs, an inequity.

Basically artificialities such as price support programs tend to defer or defeat the advance of science. Take, for example, the sensational advances made in the production of meat, milk, butter and eggs through modern feeding practices. The chemical industry has given animal and poultry feeding one of its greatest financial uplifts possibly ever seen in any industry. Yet the full effects of the use of antibiotics in animal and poultry feeding have not been captured because the farm community has been toting the artificial burden of price supports which throw all economic calculations off balance.

Had it not been for the advent of hybrid corn, the development of modern plant feed and pesticidal chemical applications, the introduction of antibiotics in animal and poultry feeding, the mechanization of farms and the growth of larger and more economic farm units, then it is likely that the U.S. farm problem today would be one of complete chaos.

With admirable restraint and warranted optimism over the future of an industry, Russell Coleman, executive vice president of the National Plant Food Institute, recently drew a broad outline of what the nation may expect of a modernized farm plant.

Although not cavalierly dismissing the existence of surpluses of wheat and cotton, among others, Dr. Coleman saw in an efficiently run national farm plant opportunities for larger production from many fewer acres of land at lower levels of cost and adequate profit levels which would give the farm operator greater net profits than he obtains today.

Dr. Coleman saw in his hopeful

analysis the road through the chaos of surpluses, farm costs squeezes and declining net farm income. The Coleman prescription is basically one of drastically reduced acres for the existing surplus crops. For cotton, wheat and corn he foresees the need of removal of 75 million acres from production of these crops while the surpluses exist. But at the same time he insists that the farm land retained in production of these crops can turn out all needed supplies at lower per unit costs of production and give the operator a better net profit at the end of the year—if the farm community will be operated on maximum soil conservation methods, use of recommended fertilization and water conservation practices.

Dr. Coleman advanced no cure-all, no short cut to Utopia. But, on the other hand, he declines the counsel of despair. He anticipates the social impact on the farm level but leaves the cushioning of that impact to the politician. The Coleman prescription may not appeal to the politician seeking reelection to office since it cannot take effect overnight. The Coleman prescription serves to point up the up-to-now absence of a daring new approach to the farm problem. The Coleman method would put into the hands of the farmer the same cost-reducing factors which are used today by the motor car manufacturers, the producers of basic steel and other large, well run industrial units.

Emphasizing the attention given to the farm revolution that is about to flower is an editorial comment made last week in the stable and wise columns of the Christian Science Monitor when it said in part, "The fact is that the industrial revolution has reached the farm."

FDA's Fruit-Color Ruling Strikes at Use of Certain Dyes

WASHINGTON, D.C.—This week Food & Drug Administration moved to halt further use of coal tar dyes in products known as orange 1 and orange 2 and red 32 to color citrus fruits and certain food and beverage products. Up to this time FDA has approved certification of these products but on the basis of other data has now been determined that these products are not harmless when fed in large amounts.

The FDA action announced on Nov. 16, 1955, becomes effective 90 days from that date. In the meantime, batches of these colors may be certified for approval and use until the 90-day cut-off date. In the big volume usage on citrus fruits, Florida orange production will be the most sharply affected.

However, it is now believed that the Florida interests will first resort to courts for relief asking for court review of the legal aspects of the FDA decision. At the same time it is believed that the Florida citrus industry will ask Congress to act immediately when it reconvenes to amend the FDA act to permit continued use of these products under tolerance residual levels.

At the time hearings were held by FDA on this issue in 1953, the citrus industry asked for the establishment of a tolerance level for red 32 when used to color Florida oranges but FDA demurred on the grounds that Congress had not granted authority



OLIN MATHIESON VISITORS—Agronomists from the Great Lakes district visited the Pasadena Ammo-Phos plant of Olin Mathieson Chemical Corp. near Houston, Texas recently. They are shown in the top picture as they toured the University of Houston Demonstration Farm adjacent to the plant. From left to right standing are Dr. Touby Kurtz and L. B. Miller, University of Illinois; Dr. A. J. Ohlrogge and Roy Bronson, Purdue University; Dr. W. A. Seay and H. F. Miller, University of Kentucky; Dr. R. L. Cook and Dr. L. Carolus, Michigan State University; Dr. H. J. Mederski and Gordon Ryde, Ohio State University; John Murdock and C. J. Chapman, University of Wisconsin; W. F. Watkins and Virgil F. Green, Olin Mathieson. Kneeling to sample the soil are Sam Cottrell and John Beatty of Olin Mathieson.

Shown in the lower photo as they boarded a private plane at Baltimore for a trip to Houston and a tour of the Olin Mathieson plant are agronomists from the Northeast. Left to right in the front row are Prof. J. H. Eakin at Dr. D. P. Satchell of Pennsylvania; Prof. C. E. Phillips, Delaware; Dr. H. Dunton, Virginia; Dr. C. B. Smith, Pennsylvania; Dr. E. R. Purvis and Dr. R. B. Alderfer, New Jersey; Dr. J. D. Campbell and A. B. Verdery of Olin Mathieson; Dr. W. C. Kelly and Dr. N. C. Brady, New York. On the plane ramp, bottom to top, are Dr. S. R. Aldrich, New York; Dr. G. G. Pohlman, West Virginia, and Dr. F. L. Bentz, Jr., Maryland.

Gloomicides

Some parents think the children are made to be a scene and not hurt.

★

Then there's the big advertising executive who retired after forty years of faithful service and his company presented him with a solid gold beer.

★

If men acted after marriage as they do during courtship, there would be fewer divorces—and more bankruptcies.

★

A conversation overheard during a meeting at Hunter College recently may indicate a trend in chemical nomenclature.

The remark was made by one of the female registrants to another: "Yes, with cupric sulfatish eyes, why did she have to wear a nickel acetatish dress with dabs of mercurous side?"

★

The "Friendly Exchange" department of a midwestern newspaper recently carried a letter from a reader, seeking an old-fashioned wooden potato-masher, with the explanation, "I would like to find one for my mother-in-law." The editor commented that such mashers were now hard to come by, adding the helpful suggestion: "A wire potato-masher will do quite as well—if you hit her just a little harder."

★

In the Alps, McAndrew hired a taxi at the station to get to his hotel. On the way the taxi skidded downhill and the driver yelled: "My brakes are gone. I can't stop the car!"

McAndrew, terribly excited, yelled: "At any rate, mon, stop the meter!"

★

Few things are more expensive than a girl who is free for the evening.

★

The trouble with Socialism is that you run out of rich people so fast that there's no one left to soak but you and me.

★

The trouble with most of those chlorophyll jokes was that they smelled.

★

The conductor never let his wife know what he earned, but one day while he was ill she picked up his check.

"John, I never realized that you made all that money!" she exclaimed. He was equal to the occasion.

"There's really not much left for me," he explained, "after I finish paying for the engineer, the fireman and the brakeman."

★

An estimate is the repairman's guess that the job will cost about \$4. The final bill, of course, will be \$17.98.

★

Television certainly helps you get acquainted with a lot of new people. Mostly repairmen.

★

The good old days . . . were those back yonder when only horses were trusted to use horse power.

★

One of the best ways to make your old car run better is to learn the price of a '56 model.

★

When money talks these days it's probably asking what happened.

POTASH OUTPUT

(Continued from page 1)

France, 15%; Spain, 11%; and Chile 6%.

U.S. exports increased 33%, to 117,386 tons (66,476 tons K_2O) with the major portion of these exports being consigned to countries in the Western Hemisphere.

Within the U.S., New Mexico, California and Utah continued to supply the major portion of domestic production, with New Mexico providing by far the greatest tonnage, amounting to 91% of the total.

World production of potassium salts increased 9% (K_2O equivalent) in 1954 as compared to 1953. Materials produced by Israel, West Germany, France and Spain accounted for the major part of the increase.

The report combined both grades of muriate of potash and manure salts in order to avoid disclosure of company operations, the compilers explained. Only one company reported production of 48-50% muriate and three firms reported manure salts.

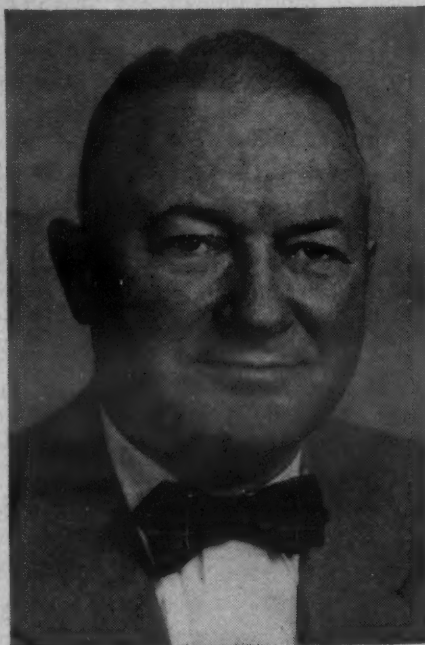
Preparation of the report was made by E. Robert Ruhlman, Commodity-Industry Analyst, and Gertrude E. Tucker, statistical assistant, working under the supervision of W. F. Dietrich, chief, branch of ceramic and fertilizer materials, division of minerals, bureau of mines, Department of the Interior.

Phomopsis Blight Threatens S. C. Christmas Tree Growth

CLEMSON, S.C.—Phomopsis blight is threatening the Christmas tree industry in South Carolina. Plant pathologists of the U.S. Forestry Service, George H. Hepting, A. Alfred Foster and E. R. Roth have been investigating the blight, particularly in Colleton county where a large plantation is being used for growing these trees.

JOB FOR NITROGEN

FARGO — Loss in yield due to trashy-surfaced seedbeds may be overcome by adequate use of nitrogen fertilizers, North Dakota Agricultural College soils specialists say.



Cash J. Cahill

POTASH SALESMAN — Cash J. Cahill has recently been appointed as sales representative for National Potash Co., to cover a number of middlewestern states, according to William B. Porterfield, Jr., vice president and sales manager. Mr. Cahill will make his headquarters at 833 W. Second St., Waterloo, Iowa, at present.

National has also announced that Robert L. Borg becomes sales representative in the states of Kentucky, Ohio, Indiana, Michigan, the City of Chicago and the Province of Ontario, Dec. 1. Mr. Borg's headquarters will be 344 S. Bristol Lane, Arlington Hts., Ill.



AT CALSPRAY MEETINGS—All the fun and color of an old time carnival went into California Spray-Chemical Corp.'s recent nationwide meetings with distributors of Ortho home and garden and livestock products. Above Marcia Raitt models the new Ortho garden smock. L. F. Czufin, advertising manager, acts as carnival "barker," introducing other merchandising plans for 1956 with the help of a wheel of fortune.

New Frock Featured At Meetings of Calspray Distributors

RICHMOND, CAL. — An Ortho garden smock, produced by the California Spray-Chemical Corp. for women to wear while gardening, was one of the hits of a recent series of Calspray meetings with distributors all over the nation at which the company's merchandising plans for 1956 were unwrapped.

According to L. F. Czufin, advertising manager for the firm, production of the fashionable gardening dress came about during a departmental staff meeting during a discussion of what the model for a home garden advertisement should wear.

"As we discussed the matter we began comparing notes about how often we'd heard women complain about being 'caught in their gardening clothes looking a fright,'" Mr. Czufin said.

"All of a sudden it dawned upon us that somehow the fashion world had overlooked designing an outfit for America's No. 1 hobby, and since no one seemed to be doing anything about it, why shouldn't we?"

"Upshot was, we commissioned Claire McCardell, who has been called 'America's foremost fashion designer', to design an Ortho garden smock. The result is a slim-lined, wrap-around dress that's practical enough for any gardening chore and attractive enough to wear shopping or for hosting at a patio party or barbecue.

"It comes in three sizes, small, medium and large, and is made of the highest quality Sanforized denim, easy to tub and iron flat. The kangaroo pockets will carry all kinds of gardening paraphernalia."

The Ortho garden smock will be offered through Ortho dealers for \$6.95 (about one-third of its retail value) when accompanied by a sales slip showing purchase of any Ortho product. The dealer is not involved in handling money or the smock itself. He has only to supply the customer with an order coupon and the dress is sent directly to her.

The Calspray distributor meetings had a "carnival" theme, and Mr. Czufin, who acted as carnival barker, presented a wheel of fortune which, he explained, was fixed in favor of the distributor and dealer. Each spin of the wheel brought forth a sales promotion winner, he said.

In addition to the smock, other highlights were:

A preview copy of the 1956 Ortho

Garden Book, with a full color cover featuring a model wearing the McCardell smock. Behind her is the "Ortho Plant Stand," a do-it-yourself feature for the garden specially designed for Calspray by Douglas Baylis, nationally known landscape architect.

The Ortho Garden Book for '56, in addition to regular features giving the latest data on care of plants and lawns, pest control guides and a spray dilution table, has directions and drawings for making garden furnishings on practically every page—including the plant stand, compost bins, plant boxes and a "medicine cabinet" for safe storage of pesticides. There is also a drawing illustrating a convenient arrangement for garden tools in a storage cabinet.

Several special offers were announced, including a free case of pint-sized bottles of Ortho-Gro with every purchase of three cases of gallon-sized bottles. Similar offers will be made for purchase of Ortho Fly Killer Dry Bait.

To stimulate sale of livestock pesticides, Calspray has produced a book of information about livestock pests and their treatment. This is to be used as a store give-away.

A final spin of the Wheel of Fortune disclosed the display kit to be offered to dealers. This includes a jumbo bin, pennants, window streamers, shelf hangers, pest charts and a giant poster and streamer. The shipping carton for the kit can be converted into a large display background.

Coke Oven Ammonium Sulfate Production Gains in September

WASHINGTON — Coke oven production of ammonium sulfate during September totaled 162,468,671 lb., a .7% gain from output of 161,366,674 lb. in August, according to the Bureau of Mines. The total also was above the 126,982,500 lb. produced in September, 1954.

Production during January-September this year totaled 1,446,147,052 lb. compared with 1,205,928,000 lb. in a similar period a year ago.

September, 1955, sales of coke oven ammonium sulfate totaled 101,390,159 lb., a gain of 23% from sales of 82,459,760 lb. in August and a jump from 92,149,500 lb. in September, 1954. January-September sales were 1,400,700,987 lb. in 1955 and 1,277,562,700 lb. in 1954.

Stocks on hand at the end of September this year totaled 342,979,266 lb., up 19% from 286,984,917 lb. in August.

Croplife

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Northeastern states.

Pesticide Safety Stressed

Safety is a subject usually associated with the fertilizer industry, but it is also a topic about which the pesticide industry is becoming more and more concerned. However, the safety problems are considerably different, since the chief place of danger of harm from pesticides lies not so much in the processing plants, but in field use, after the materials are in the hands of users, completely away from the manufacturer's control.

The fertilizer manufacturer is concerned mainly with safety in his manufacturing plant, but the pesticide trade's problem reaches far beyond.

As pointed out so clearly in a talk by C. O. Barnard, executive secretary of the Western Agricultural Chemicals Assn. at Washington, D.C., recently, hazards to workers in pesticide processing plants are minimized by improved safety techniques designed by industrial hygienists. Management has required strict adherence to these precautionary rules.

But in the field, the story is different. Labels are neither read nor heeded in too many cases. Packages too frequently are opened and the toxic contents dumped into miscellaneous sacks, boxes and other containers without benefit of label . . . all of which invites tragedy. No matter how well-worded the label and instructions are, if they are set aside and not read, the effect is voided.

One of the points made in Mr. Barnard's talk involved the disposal of used containers. Herein lies an acute danger, when thousands of containers may be thrown on a dump without being completely emptied, thus offering potential harm to anyone who might attempt to reuse such a can for holding water, for instance.

On one air strip, Mr. Barnard reported, agricultural inspectors drained the residual contents of ten one-gallon cans, and collected a full gallon of a toxic material! It is not difficult to visualize the results of someone's spotting these attractive containers and taking them home for household use!

Who is to take the initiative in trying to establish safe practices throughout the trade, right down to container disposal? That seems to be the question. The industry itself, that is, those who make the basic materials, the formulators, the distributors and the dealers all have an important stake in this matter, even beyond any legal responsibility that might be involved.

Many newspapers seem to take delight in giving prominence to incidents involving injury from pesticidal chemicals. "Child Poisoned by Insecticide" makes a spectacular headline and the tragic aspect of it has a tendency to create a strong reaction against the whole pesticide industry. Few people would take the trouble to consider that in practically all cases, the people connected with industry have little, if any actual control over the possibility of careless handling of materials on the part of users.

As a step toward solving this problem, Mr. Barnard suggested cooperative action between the trade associations, the Federal and State regulatory agencies and the Universities to promote safe application practices and also safe disposal of containers.

In a similar approach, Arthur W. Mohr, president of California Spray-Chemical Corp. suggested in a talk before the National Agricultural Chemicals Assn. at Spring Lake, N.J. last September, that the NAC set up a formal safety educational program for the industry's customers. His proposal included the part to be played by the industry itself, and the Association.

His general outline seems appropriate to review at this time, since the subject of safety is being given considerable attention. Mr. Mohr suggested that all media prepared for public consumption (such as pamphlets, sales literature, recommended spray programs and advertisements) include a paragraph or statement on safety. If space is limited on the label itself, a staffer could be included to bring the message to the user.

One of the most practical suggestions made by Mr. Mohr, aside from putting more information on packages, is that the Universities, the extension services and farm advisers should be urged to include statements on safety practices in all their literature and recommendations. Safety could also be stressed at growers' meetings in order to impress the users with the responsibility resting on them for safe practices.

Naturally, there can be no simple nor immediate answer to this problem of safety in the use of pesticides, but the fact that industry leaders are taking steps to achieve this end, is in itself encouraging. Like so many problems connected with the use of chemicals in farming, the basic need is one of education. And that takes time.

Chemical Advancement Seen

Since the chemical industry in the U.S. has come into its own within the past few years, it sometimes seems that people of previous generations had little comprehension of what an important role the industry would play in our time.

Still, back in the 19th Century, far-sighted scientists were looking into the future with surprising accuracy, to predict that "the country that has the best chemists . . . will be the most prosperous and most powerful."

Such a prophet was Peter Townsend Austen, who wrote an article in the "North American Review" in March, 1896, excerpts of which follow:

"It is fair to hold that the country that has the best chemists will in the long run be the most prosperous and the most powerful. It will have at the lowest cost the best food, the best manufactured materials, the fewest wastes and unutilized forms of matters, the best guns, and the strongest explosives, the most resistant armour.

"Its inhabitants will make the best use of their country's resources; they will be the most healthy, and the most free from disease; they will present the least resistance to favorable evolution; they will be the most thrifty and the least dependent on other nations.

"The education of its people in chemistry and the physical sciences is the most paying investment that a country can make. Competition today between nations is essentially a competition in the science and application of chemistry. . . ."

Quote

America's farms could feed twice the present U.S. population of 164 million, if improved farming practices were universally adopted. In the past 15 years alone, crop production has been increased by 44% through the use of better farming "know how."

Among factors making possible this increased production are better research, greater reliance on labor saving machinery, new improved heavy yielding crop varieties, disease and insect control, and greater, more efficient use of fertilizer.

About 25% of the nation's present crop output is directly traceable to the use of commercial fertilizer. Increased production efficiency means that farmers have the ability to grow higher yields at lower costs on fewer acres. This can help meet future food needs and it should help also to solve present crop surplus problems.—Middlewest Soil Improvement Committee in recent statement.



CROPLIFE is a controlled circulation journal mailed to those responsible for the production and distribution of fertilizer and other farm chemicals and to retail dealers of the agricultural chemical industry in the U.S. To those not on the controlled list, CROPLIFE is available at \$5 for one year, \$9 for two years (\$8 a year outside the U.S. and possessions). Single copy price, 25¢.

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MEETING MEMOS

Nov. 28-Dec. 1—Entomological Society of America, Netherlands Plaza Hotel, Cincinnati, Ohio.
 Nov. 28-Dec. 2—Nebraska Fertilizer Dealer Schools; at Auburn Nov. 28; Wayne Nov. 29; Valentine Nov. 30; Scottsbluff Dec. 2.
 Nov. 29—Fertilizer Short Course, North Dakota Agricultural College, Fargo.
 Nov. 29-30—Western Canadian Weed Control Conference, Regina, Sask.
 Nov. 29-30—Land Use Forum, Kansas State College, Manhattan, Kansas, Dr. R. V. Olson, Kansas State College, Chairman, Arrangements Committee.
 Nov. 29-30—Oklahoma Plant Food Educational Society, Inc., Memorial Union Bldg. Oklahoma A&M College, Stillwater.
 Nov. 30-Dec. 1—Tenth Hybrid Seed Corn Industry-Research Conference, La Salle Hotel, Chicago.
 Dec. 2—South Dakota Fertilizer Dealers Short Course, South Dakota State College, College Station.
 Dec. 5—Soils & Fertilizer Short Course, Institute of Agriculture, University of Minnesota, St. Paul Campus.
 Dec. 5-7—Agricultural Ammonia Institute, Kansas City; Jack F. Oris-

well, Executive Vice President, Claridge Hotel, Memphis, Tenn.
 Dec. 5-7—Chemical Specialties Manufacturers Assn., 42nd Annual Convention, Roosevelt Hotel, New York; H. W. Hamilton, 50 E. 41st St., New York 17, N.Y., Executive Secretary.
 Dec. 6-8—North Central Weed Control Conference, Hotel Fontenelle, Omaha, Neb., F. W. Slife, University of Illinois, secretary-treasurer.
 Dec. 8-9—Michigan Fertilizer and Lime Conference, Michigan State College, East Lansing.
 Dec. 15-16—Beltwide Cotton Production Conference, Hotel Peabody, Memphis, Sponsored by the National Cotton Council.
 Dec. 28-30—American Phytopathological Society, Atlanta, Ga.; Glenn S. Pound, University of Wisconsin, Madison, Wis., Secretary.
 Dec. 29—Symposium on Health Hazards of Chemicals, before the Pharmacy Section at Annual Meeting of American Association for the Advancement of Science, Atlanta.

1956

Jan. 3-4—Annual Nebraska Fertilizer Dealers Conference, Activities Bldg., University of Nebraska College of Agriculture, Lincoln.

Jan. 4-6—Weed Society of America, Charter Meeting, Hotel New Yorker, New York; W. O. Shaw, U.S. Department of Agriculture, Beltsville, Md., Secretary-Treasurer.
 Jan. 5-6—Second Annual Mississippi Insect Control Conference, Mississippi State College.
 Jan. 5-6—Texas Fertilizer Conference, Texas A&M College, College Station, Texas.
 Jan. 6—Northeastern Weed Control Conference, Hotel New Yorker, New York, R. J. Aldrich, Rutgers University, Secretary.
 Jan. 10-11—Eighth Annual North Carolina Pesticide School, North Carolina State College, Raleigh.
 Jan. 11-12—Wisconsin Insect Control Conference, Lorraine Hotel, Madison, Wis.
 Jan. 15-17—New Mexico Grain & Feed Dealers Assn., Annual Convention, Hilton Hotel, Albuquerque, with Special Portion for Fertilizer and Farm Chemical Dealers; H. B. Henning, Albuquerque, Secretary.
 Jan. 16-18—Northwest Vegetable Insect Control Conference, Imperial Hotel, Portland, Ore.
 Jan. 16-18—Southern Weed Conference, Ninth Annual Meeting, Hotel Jung, New Orleans; Dr. E. G. Rodgers, Florida Agricultural Experiment Station, Gainesville, Secretary-Treasurer.
 Jan. 17—Georgia Plant Food Educational Society, Annual Meeting, University of Georgia, Athens, Ga., Fielding Reed, American Potash Institute, Mortgage Guarantee Bldg., Atlanta 3, Ga., secretary-treasurer.
 Jan. 18—Western Oregon Fertilizer Dealer Meeting, Sponsored by the Pacific Northwest Plant Food Assn., Oregon State College, Corvallis, Ore.
 Jan. 26-27—Custom Spray Operators Training School, University of Illinois.
 Jan. 26-29—Agricultural Aircraft Assn., Inc., Sixth Annual Convention, Wilton Hotel, Long Beach, Cal.; Wanda Brahmstetter, Route 2, Box 1077, Sacramento, Cal., Executive Secretary.
 Jan. 27—Colorado Agricultural Chemicals Assn., Cosmopolitan Hotel, Denver.
 Jan. 30-Feb. 3—Illinois Pest Control Operators School, Purdue University, Lafayette, Ind.
 Feb. 6-8—Agronomy Section, Association of Southern Agricultural Workers, Atlanta (Ga.), Biltmore Hotel; W. E. Colwell, North Carolina State College, Secretary.
 Feb. 6-8—Cotton States Branch, Entomological Society of America, Biltmore Hotel, Atlanta, Ga. W. G. Eden, Alabama Polytechnic Institute, Auburn, Ala., secretary-treasurer.
 Feb. 7-9—National Garden Supply Trade Show, Kingsbridge Armory, New York City.
 Feb. 14-16—Agricultural Chemicals Conference, Lubbock, Texas.
 Feb. 15-17—California Weed Control Conference, Sacramento and Davis, Cal.; Oliver A. Leonard, Botany Dept., University of California, Davis, Cal., Secretary.
 Feb. 15-17—Western Weed Control Conference, Sacramento and Davis, Cal.; W. O. Robacker, U.S. Department of Agriculture, Nevada Agricultural Experiment Station, Reno, Nev., Secretary-Treasurer.
 March 6-7—Fifth Annual Western Cotton Production Conference, Fresno Hacienda, Fresno, Cal.
 March 14-18—National Agricultural

CROPLIFE, November 28, 1955—23

Chemicals Assn., Spring Meeting, Hollywood Beach Hotel, Hollywood, Fla., Lea S. Hitchner, NAO Executive Secretary, 1145 19th St. N.W., Washington 6, D.C.
 March 28-30—North Central States Branch, Entomological Society of America, Purdue University Memorial Union, Lafayette, Ind.
 June 10-13—National Plant Food Institute, Annual Convention, the Greenbrier, White Sulphur Springs, W. Va.
 June 28-30—Association of Southern Feed & Fertilizer Control Officials, 14th Annual Convention, Hotel Roanoke, Roanoke, Va.; Bruce Poundstone, Kentucky Agricultural Experiment Station, Lexington, Ky., Secretary-Treasurer.
 June 28-30—Seventh Regional Fertilizer Conference of the Pacific Northwest, Chinook Hotel, Yakima, Wash.
 Aug. 17-25—Tenth International Congress of Entomology, McGill University and University of Montreal, Montreal, Canada, J. A. Downes, Science Service Bldg., Carling Ave., Ottawa, Ontario, Canada, Congress Secretary.

TO SPEAK AT RICE MEETING

FAYETTEVILLE, ARK.—Dr. R. L. Beacher, associate agronomist in charge of the Soil Testing and Research Laboratory at the University of Arkansas' Agricultural Experiment Station, has been invited to take part in the annual meeting of the FAO International Rice Commission to be held in Malaya early in December. The invitation came from the Food and Agriculture Organization of the United Nations which is sponsoring his trip. Dr. Beacher will present a paper on the sampling and analysis of rice soils. He will give the report at the meeting of the Working Party on Fertilizers of the International Rice Commission.

WATERSHED CONGRESS

WASHINGTON—The second National Watershed Congress will be held at the Statler Hotel here Dec. 5-6. Discussions will center around protection and improved management.

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